

THE DOCK & HARBOUR AUTHORITY

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Editorial.

The Port of Newport News, Virginia, U.S.A.

The Chesapeake and Ohio Railway, which extends westward from the Atlantic Coast and passes through the States of Virginia, West Virginia, Kentucky, Ohio, and Indiana, has as its seaport on the Atlantic Coast the Port of Newport News, which is situated on the north side of Hampton Roads Harbour.

The harbour lies at the mouth of Chesapeake Bay, situated about 30 miles from the sea, and there is a sufficient depth of water to accommodate the deepest draft vessels.

The present facilities in the port consist of a coal pier, which is of the high-level elevating type and is a steel structure 1,200-ft. long and 90-ft. high, and 7 piers for the purpose of handling general merchandise, which vary in length from 500 to 800-ft.; 5 of these are covered and 2 are open.

There is also a grain elevator with a storage capacity of 1,000,000 bushels and an average loading rate of 25,000 bushels per hour. The warehouse accommodation at the port gives a storage space of 1,250,000 sq. ft. and is made up by 62 warehouses.

Coal is by far the greatest commodity handled at the port, and for this purpose a new coal pier is at present under construction, at an estimated cost of two million dollars.

For the seven years ended June 30th, 1929, the tonnage of goods handled at the port was as follows:—Exports, 10,822,388 tons; imports, 867,276 tons, making a total of 11,689,664 tons.

The port of Newport News ranks sixth in tonnage handled amongst the principal North Atlantic ports in the United States, and forms the supplement for this month's issue.

Congestion of Traffic at Ports.

By kind permission of the Institute of Transport we are able in this issue to publish a thesis on the special subject prescribed on behalf of the Dock and Harbour Authorities' Association, and awarded the Water Transport Premium, 1929-1930, donated by the Association. The full text of the prescribed subject was "Causes of and precautions against congestion at ports, with special reference to the best methods of preventing congestion of traffic at ports."

The article, we feel sure, will prove interesting to our readers, as it deals very effectively and completely with the various causes of congestion at ports.

Railway Company Plans New Works for Mersey.

The Great Western Railway is to embark on a big scheme of development at their Morpeth Dock Station, Birkenhead, and have recently acquired land and buildings valued at £200,000 at Birkenhead. They intend to construct most modern sidings at Birkenhead and to erect in Liverpool an imposing block of offices and a warehouse at the pierhead. The reconstruction of the Liverpool goods station will also be taken in hand. Already work has been going on with regard to the filling in of the two docks—Morpeth Branch Dock on the Birkenhead side and Manchester Dock on the Liverpool side—and the reconstruction work on the Birkenhead side is employing several hundred men. The scheme, when completed, will double the capacity of the Morpeth Dock Goods Station, Birkenhead, which will then have ample accommodation for 1,000 wagons daily. With the completion of fifteen additional marshalling sidings, now complete, two new warehouses covering about 60,000 sq. ft. have been opened, and a modern garage, with repair shops and staff, accommodating 100 goods motor lorries, has been erected. There are to be heavy lifts, shipment cargo being speedily handled by a modern goliath gantry crane spanning three sidings and adjoining cart roads, and all the sidings are being laid down on modern principles to minimise shunting and to save time. Hydraulic cranes have been superseded by electric crane power and the five cranes are being supplemented by petrol electric mobile cranes travelling on their own wheels. A large and increasing fleet of motor lorries and horse vehicles for collection and delivery of merchandise on both sides of the river has been

organised. New waterside premises with modern electric cranes have been constructed and will be continued for barging shipment traffic direct between Birkenhead and vessels in the Liverpool docks.

Big Drop in Outward Cargo at Southampton.

Although repercussions have been felt at Southampton during the past year from the general trade depression, the effects have been less than in many ports which are more dependent on cargo activities.

The final statistics for 1930 will, it is quite clear, show a drop in outward cargo, and it will probably be in the neighbourhood of 100,000 tons as compared with the previous year. The figures, however, are likely to show to better advantage in regard to passenger traffic, in which Southampton has maintained its position among the large ports of the country. The number of ships dealt with will also be found to have been favourable.

There has been a better note as regards imported cargo, and vast quantities have been handled from the Colonies and foreign countries.

Cockenzie and Port Seton Harbour Commissioners decide to Proceed with Important Scheme.

It is announced that the Cockenzie and Port Seton Harbour Commissioners have decided to proceed with an important scheme for the alteration of the entrance to the local harbour which is bound to provide a great improvement. The present entrance has always been recognised as difficult and dangerous under certain weather conditions, and various suggestions have been made for its improvement from time to time. The scheme now adopted provides for an addition being made to the east pier while the harbour is also to be dredged, and it is estimated that this scheme will involve an outlay of several thousands of pounds. It is intended to proceed with this scheme on an early date, and its adoption has given great satisfaction throughout the community.

Manchester Ship Canal Traffic.

From the Manchester Ship Canal Company we have received the monthly approximate traffic return for November. This shows that the receipts were £100,484, compared with £111,761 in November, 1929, a decrease of £11,277. In summarising up the total for the eleven months ending November 30th we find the total receipts were £1,176,573, compared with £1,302,441 for the corresponding period of 1929. It is pointed out by the company that the gross receipts to November 30th, 1930 have been affected by reductions in the company's tolls arising out of the Derating Act; against the reduction in receipts the company have savings in local rates and from decreases in other expenditure to November 30th, which amount approximately to £40,000.

The Institution of Civil Engineers.

The Institution of Civil Engineers are holding an ordinary meeting on Tuesday, January 13th, at 6 p.m., when the paper to be submitted for discussion will be "Experiments on Siphon Spillways," by Professor Arnold Hartley Gibson, D.Sc., M.Inst.C.E., Thomas Hulme Aspey, M.Sc., and Fred Tattersall, M.Sc.

An informal meeting will be held on Wednesday, January 14th, at 6 p.m., when the subject for discussion will be "Reinforced-Concrete Deep-Water Jetties," by Ernest Latham, M.Inst.C.E. Sir Cyril Kirkpatrick, vice-president, will take the chair.

A students' meeting will be held on Wednesday, January 14th, at 6 p.m., when the paper to be read will be "The Aerial Cableways at Nag Hammadi Barrage, Upper Egypt," by Ivor William Gerwyn Freeman, B.Sc., Stud.Inst.C.E. Professor S. M. Dixon, M.A., B.A.I., M.Inst.C.E., will take the chair.

Scottish Harbour Notes.

New Dock at Glasgow to be Opened Shortly.

CLYDE NAVIGATION TRUSTEES have decided to invite Their Majesties the King and Queen to formally open the new dock at Shieldhall, Glasgow, which ceremony it is proposed should take place any time after April next. The new Shieldhall Dock, which is already in use, is the first of a series which the Clyde Navigation Trust propose to build, and it is estimated that two million pounds will be spent on this scheme which was originally started three years ago. Nearly eighty thousand pounds will be spent by the Trust in widening certain portions of the River Clyde, so that it will be broad enough to launch the new Cunard liner which Messrs. John Brown and Company are now building at their Clydebank yard. The river will be widened opposite the berth where this liner is now being constructed, and widening will also take place opposite the Dalmuir Sewage Wharf.

Clyde Navigation Trust.

While dealing with the Clyde Navigation Trust it is interesting to note that an advertisement concerning the operations of this body is now regularly appearing in the official journal of the Glasgow Chamber of Commerce. In this announcement it is pointed out that as a distributing centre for Scotland, for the North of England, and for Ireland the position of the City of Glasgow is unique and that its value to shippers, importers, and distributors is immeasurable. It is also noted that Glasgow now possesses eleven miles of quay; six miles of transit sheds; a modern granary of 31,000 tons capacity; large timber storage accommodation, both covered and open; direct rail communication for the rapid and economic handling of coal and iron ore shipments; and, in addition, five graving docks with a capacity for vessels up to 22,000 tons. It is further added that extensive new docks—equipped with the latest plant—are now in course of construction to cope with the constant increase of shipping and traffic.

Fraserburgh Harbour Figures prove Satisfactory.

At a recently-held meeting of Fraserburgh Harbour Commissioners, congratulatory observations were made concerning the results of the trading of the past year locally. It was hoped (it was reported) that a new record would be established for the year under review, but—while this was not realised through the falling away of the fishing in the month of August—the year's revenue constitutes the fourth best in the history of the local harbour. The five years which yielded the highest revenues at Fraserburgh were £25,360 in 1920; £24,453 in 1924; £24,200 in 1925; £23,524 in 1930; and £23,264 in 1928. A very satisfactory feature of 1930 was—while there was a decrease of £1,872 on dues on herrings landed and cured herrings shipped—the net decrease for the year was only £676. This therefore showed that there was a very material increase on dues arising from increased general trade at the harbour.

Dealing with the activities of the past year Mr. John Cranna (Harbour Treasurer) commented on the fact that Fraserburgh Harbour was now in a position of complete solvency and independence. "It is a pretty general accepted axiom," commented Mr. Cranna, "that periods of prosperity and adversity come in cycles. Fraserburgh Harbour has had to bear sixteen years of severe financial chastisement, and surely it is not unreasonable to expect—in accordance with the present promising state of things—that a cycle of prosperous years has at last set in?" It was also mentioned at this meeting of the Commissioners that expenditure maintenance showed an increase of £1,043 during the past year. The expenditure on local rates in 1929 was £3,345, and in 1930, £1,886; and this decrease of £1,458 was due to the effect of de-rating which meant very substantial benefit to the local harbour.

Aberdeen Fish Market Wharf Completed.

Now that the extension of Aberdeen Fish Market wharf at the Commercial Quay has been completed, steps are being taken to carry out the widening of the wharf and fish market from Market Street to Black's Lane—a scheme which will cost £38,000. Dealing with the complete extension of the Commercial Quay wharf a joint committee reports that (by modifying the design) it was found possible to effect a saving of £10,000 on the original estimate of £32,300 while additional modifications resulted in a further reduction. The total cost of the work had actually amounted to £17,163, of which the Town Council's proportion amounted to £8,581.

Dealing with the contemplated widening of the Aberdeen Wharf and Fish Market, Mr. R. Gordon Nicol (Harbour Engineer) states that the portion of the wharf to be widened extends to a length of about 930 lineal feet. The width of the

existing Fish Market building is 36-ft., and the proposed scheme provides for the widening of the market to 52-ft. by adding a strip 16-ft. in width along the front next to the Albert Basin. The widening of the Fish Market building (which would be carried out by Aberdeen Town Council) would be arranged to suit the design of the widened wharf. The estimated cost of constructing an independent wharf in front of the existing wharf is £56,000, and by modifying the design and partially retaining the existing structure as part of the new wharf the estimated cost was reduced to £42,800. Under the policy adopted by the Town Council and Harbour Commissioners of adopting a lighter type of construction further modifications are made on the design, and the estimated cost is further reduced to £37,800—an estimate approved by the joint sub-committee in October, 1928.

Lerwick Harbour Trustees arrange Loan of £14,000.

It is understood that Lerwick Harbour Trustees have arranged a loan of £14,000 with the Public Works Loan Board in connection with the re-building of the entire sea wall at the local Alexandra Wharf. The new wall was urgently needed as the old wall had become undermined and cracked, and as there was a danger that it might collapse into the sea. It is only recently that the scheme of re-building was completed at a cost in the region of £20,758, and as a result great improvement has been effected. Great gratification is felt by the local Harbour Trustees at the successful negotiations with the Public Works Loan Board with regard to the loan in question.

Weser River Shipping during October, 1930.

On account of considerable rainfall conditions on the Weser during the first third of the month of October were at last somewhat more favourable. The lowest level registered at Hanover-Munden on the 4th October was 1.53 metres, and the highest on the 11th October 3.38 metres. The average draft depth rose from 1.20 metres in September to 1.98 metres. However, there was sufficient water to take fully-loaded barges only from the 8th to the 19th October. On the stretch Minden-Bremen the lowest level was 2.08 metres on the 1st, the highest 3.70 metres on the 12th. The average draft depth was 2.69 metres, 60 centimetres higher than in the previous month. Full loads were possible here from the 9th to the 22nd October.

Goods traffic through the Bremen Weser Lock increased in comparison with the previous month. Downstream traffic shipments with 167,000 tons, rose by 25,400 tons, of which 21,600 tons alone fell to coal. Gravel and stones showed an increase of 5,500 tons, due to the Norddeutsche Hütte having recommenced its purchase of chalkstones. Due to the extremely unfavourable water conditions on the Weser, the transport of these stones ceased from the middle of June from Polle. Potash and salt decreased by 5,000 tons. Upstream traffic rose from 26,800 tons to 30,000 tons, due to larger shipments of grain—3,700 tons. Timber and flour transports were less.

In Bremen sea traffic in October 844,036 net registered tons, or 75,864 net registered tons more than in September, arrived. In comparison with October, 1929, the tonnage was 4,145 net registered tons lower. During the past ten months of the year 7,665,779 net registered tons arrived, against 7,554,890 net registered tons in 1929. Traffic thus increased by 110,889, or 1.4 per cent.

In sea-borne goods traffic of the five most important Weser ports, thanks to the seasonal amounts of cotton imported, import in October recovered still further. It reached 420,900 tons, or 51,700 tons more than in September, and 148,700 tons more than in August, which showed the lowest figure for years. In comparison with October of the previous year the month under review was less by 84,300 tons, or 17 per cent., although cotton arrivals since the beginning of the season this year were almost one-third more than in the previous two years. Exports increased in comparison with September with 195,000 tons by 7,200 tons, but were less by 18,200 tons, or 9 per cent., than in October, 1929. There would appear to be a deterioration also in exports, which hitherto have been satisfactory. During the past ten months of the year a total of 5,384,000 tons were imported and exported, against 5,756,200 tons during the same period of the previous year. Thus traffic decreased by 372,200 tons, or 65 per cent. Imports fell further, i.e., 417,500 tons, chiefly due to the measures of the Government against the importation of foreign grain. The total amount unloaded amounted to 3,467,400 tons, or 11 per cent. less. Exports rose from 1,871,400 tons to 1,916,700 tons, by 45,300 tons, or 2 per cent. Up to the end of September, however, it was still almost 4 per cent.

Ceylon, Bengal and Bombay Harbour Notes.

Ceylon.

Cost of Water to Shipping in Colombo.

THE charges levied at present for water supplied to shipping in Colombo were the subject of discussion at the last meeting of the Colombo Port Commission. The matter was discussed at considerable length, and it was decided to address a letter to the Chairman of the Colombo Municipal Council, and Mayor of Colombo, enclosing apposite information and stating that the Commission is investigating the possibility of reducing the cost of water to shipping, both in respect of the charges which is at present made by the municipality and in respect of the cost of putting the water on board ships, and asking him what reduction the Council is to make on the present charge. It was also decided to request the Harbour Engineer to bring up to date the figures prepared in 1927, regarding the cost of putting water on board ships in the harbour, if this service were carried out by the Port Commission.

Foreign Trade of Colombo.

Each succeeding month this year the foreign trade figures of Ceylon have been increasingly depressing, showing a steady decline in imports and exports. In October generally the decline has been stopped, and in one direction—the value of exports other than domestic—there has been a rise of approximately Rs. 450,000. As a consequence the total exports have risen by nearly Rs. 200,000 in value. On the other hand the value of imports has again fallen and it is necessary to go back to the year 1924 to find a figure lower than that of October, 1930. The low level to which exports from Ceylon have dropped, even with the rise mentioned above, can be gauged by the fact that October's returns are less than half those of October, 1925, and over Rs. 12,000,000 less than the corresponding month last year. Compared with October, 1928, they are over Rs. 10,000,000 less. The total exports last month amounted to a value of Rs. 23,346,953.

The total export figures for the first ten months of the year as compared with the same period of 1929 are even more disturbing as there is a deficit on this year's values of Rs. 81,713,406 compared with last year. Almost as large is the fall in the value of imports during this same period. Compared with the first ten months of 1929 the figures for 1930 to the end of October show a fall of Rs. 79,001,400.

As a consequence the Customs revenue has fallen in a similar ratio and the total collections have fallen during the first ten months of the year as compared with the same period of 1929 by Rs. 3,451,182. Under the import duties heading there have been decreases in all sections except those of kerosene oil, motor spirits and sugar. Motor spirits and kerosene oil import duties have risen by Rs. 2,198,740 during the first ten months of the year, and sugar by Rs. 401,804.

Bengal.

India's Foreign Trade.

The trade returns of British India for October, just issued, show as compared with the preceding month, increases in the value of imports and re-exports with a decrease in exports. The imports of private merchandise totalled Rs. 12,78 lakhs, an increase of Rs. 1,60 lakhs, as compared with the preceding month; re-exports rose by Rs. 22 lakhs to Rs. 46 lakhs. The value of exports of Indian produce and manufactures, however, fell by Rs. 2,08 lakhs, from Rs. 19,17 lakhs in September, 1930, to Rs. 17,09 lakhs in the month under review. Treasure on private account, including currency notes, showed a net import of Rs. 25 lakhs in October, 1930, as against Rs. 1,57 lakhs in the preceding month, and Rs. 1,66 lakhs in October, 1929. Measured by the statistics of merchandise and treasure, the total visible balance of trade in October was Rs. 5,16 lakhs in favour of India as compared with Rs. 6,81 lakhs in September, 1930, and a balance of Rs. 5,46 lakhs in favour of India in October, 1929. During the seven months ending October, the visible balance of trade in merchandise and treasure was Rs. 25,10 lakhs in favour of India as compared with Rs. 33,00 lakhs in the corresponding period of the preceding year. The balance of remittances of funds in October was minus Rs. 8 lakhs and in the seven months ended October, 1930, minus Rs. 6,45 lakhs.

Tonnage of Vessels entering Indian Ports in October.

The tonnage of vessels that entered into British Indian Ports and cleared out with cargoes from and to foreign countries and British Possessions during October, 1930, amounted

respectively to 709,000 and 631,000 as against 642,000 and 635,000 in September, 1930, and 690,000 and 716,000 a year ago. During the seven months ended October, 1930, the tonnage of vessels entered and cleared with cargoes amounted to 4,543,000 and 4,735,000, as compared with 4,668,000 and 5,098,000 in the corresponding period of the preceding year.

Bombay.

Bombay's Foreign Trade.

The aggregate value of the foreign trade of Bombay (imports and exports) for the month of September 1930, amounted to Rs. 9.05 crores, showing a fall of Rs. 3.39 crores, or 27 per cent. as compared with the figures of the corresponding month of the previous year. This is due to smaller arrivals and reduced shipments of both merchandise and treasure.

The imports of merchandise were valued at Rs. 3.67 crores, showing a fall of Rs. 2.61 crores, or nearly 42 per cent.

The exports of Indian produce from the Port of Bombay were valued at Rs. 4.4 lakhs, as against Rs. 4.65 crores in the same month last year, showing a decrease of Rs. 24.56 lakhs, or 5 per cent.

Lloyd Quay opened in Karachi.

His Excellency Sir F. Sykes, the Governor of Bombay, performed the opening ceremony of the Lloyd Quay and the Lloyd Gate to the new west wharves of Karachi Harbour on November 15th. The works cost approximately one crore and twenty lakhs of rupees, and a sum of Rs. 9 lakhs is still to be expended in equipping two of the four berths built. The available depth of water is these new berths is 34-ft. below the low water level of ordinary spring tides, enabling full-laden vessels to lie alongside at all states of the tide.

The berths are served by railway yards of ample capacity with direct connection with the North-Western Railway system, providing direct communication with all parts of India.

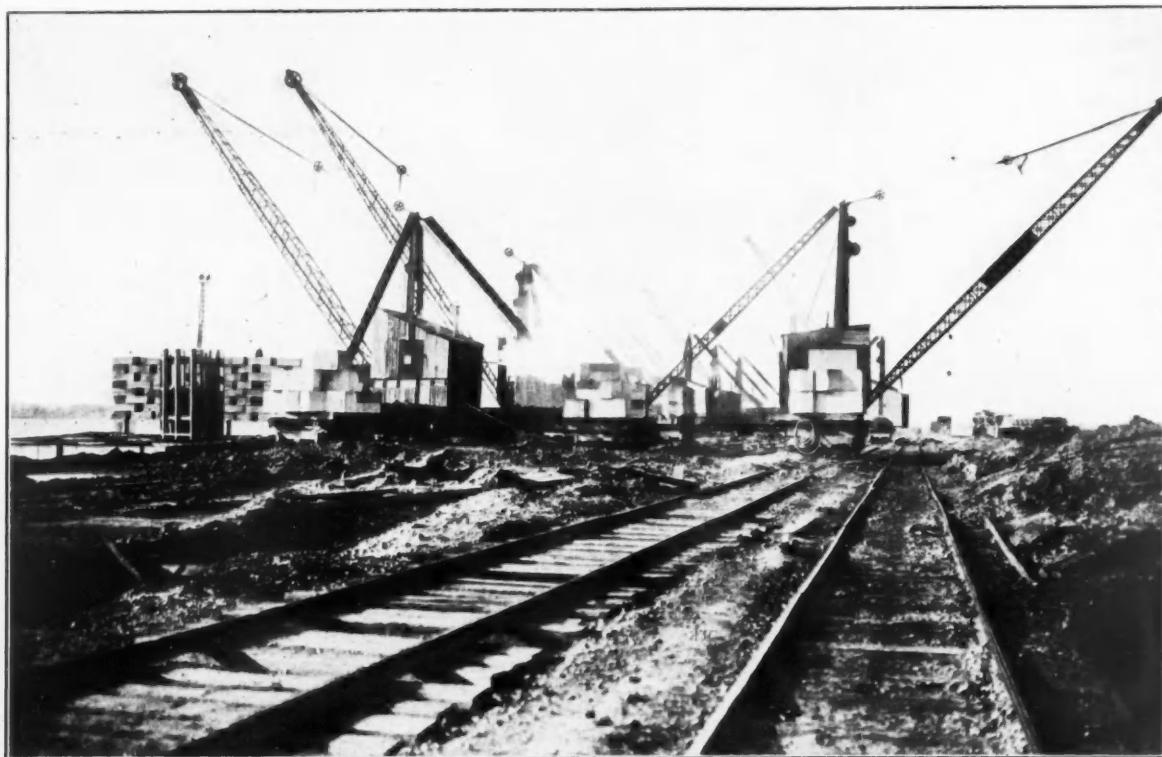
In his reply to the address of the Chairman of the Karachi Port Trust, the Governor said the remark in the Chairman's address which most pleased him was that despite the trade depression of the last few years, the Port Trust's financial position was sound. Sir Frederick Sykes proceeded: "When the Government embarked upon that immense project, the Sukkur Barrage, they realised that their own efforts alone would never be sufficient to make it a success. Perhaps the most important of the authorities to which they looked for co-operation were the Trustees of the Port of Karachi. If the Sukkur Barrage is to be the success we all hope it will be, it must lead to unprecedented development of the trade of this port.

"In view of the severe criticism to which the Barrage project has been subjected and the vigorous attacks made on the Government for embarking upon it, it is a source of particular gratification to me and my Government that you have shown such an admirable spirit of confidence and foresight and have not hesitated to embark on this very large work with ample faith in the future of your Port and Province."

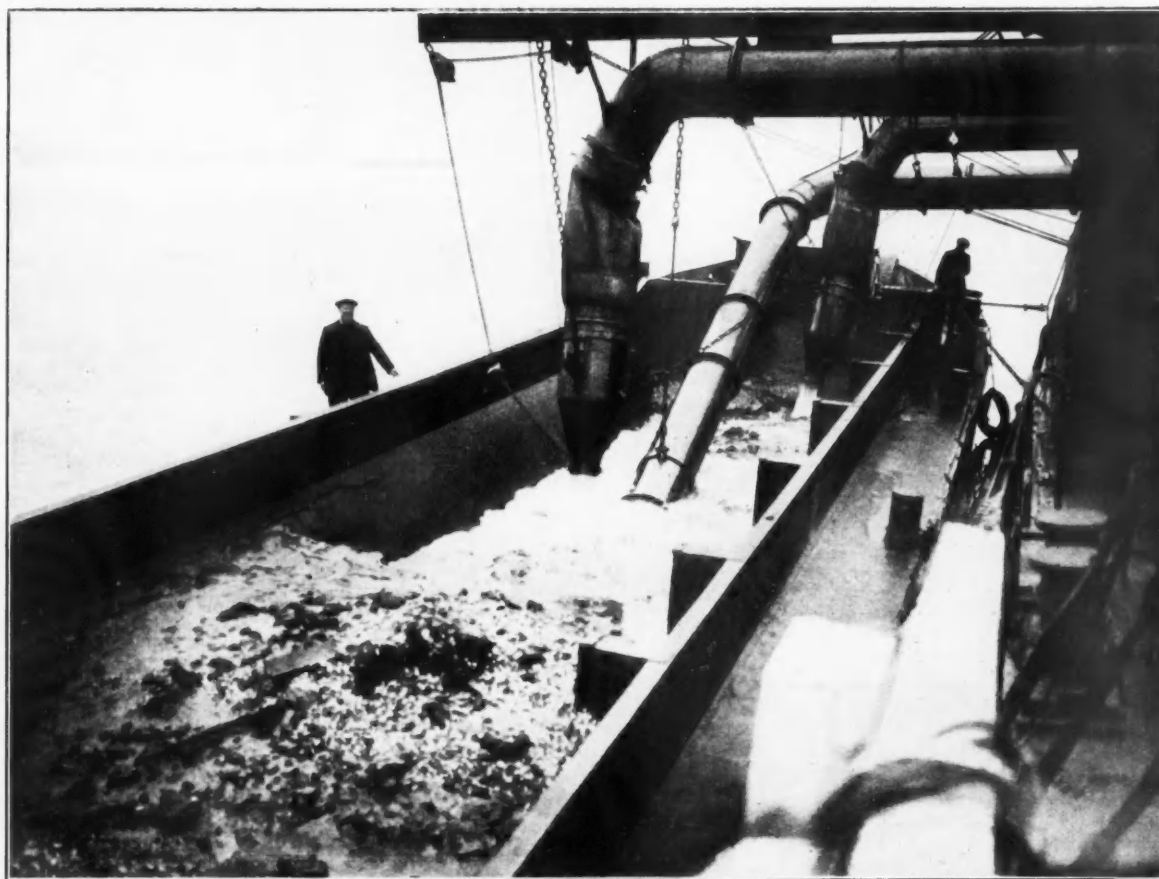
New Traffic for Preston.

Bitumen carried in a molten state is now being passed over the Preston dock quays. The first steamer, the "Ebano," to open this new trade arrived a few days ago with a cargo of 2,500 tons. The sum of £35,000 has already been spent erecting plant at Preston to deal with this cargo. The "Ebano" was specially built for the trade at Belfast this year at a cost of £100,000, and this is her third trip. She left Harburg, a small port on the Elbe, near Hamburg, recently, with her 2,500-ton cargo of liquid bitumen in four huge steam-heated tanks. Throughout the voyage the bitumen was kept at a temperature of 300 deg. F., and on arrival at Preston it was pumped into huge steel containers which were also specially heated. From the containers it can be transferred to specially heated tank railway trucks, and thus taken by rail to any station still in the liquid state. There the company undertake to deliver it to the required point, again in heated lorries, so that from the time it leaves the refining factory until it reaches the roadway or the factory where it is to be used the bitumen is kept at a temperature of about 300 degrees.

Docks Extension Work at Southampton.



A Chain of Cranes on the Dock Extension removing the "Spoil" from the Monolith Wall.



Barges loaded with "Spoil" which is being sucked up by the "Foremost Chief" and deposited on the area to be reclaimed by means of pipe lines. The "Spoil" is kept in a liquid state by the two great jets of water shown in this photograph.

Port of Southampton Topics.

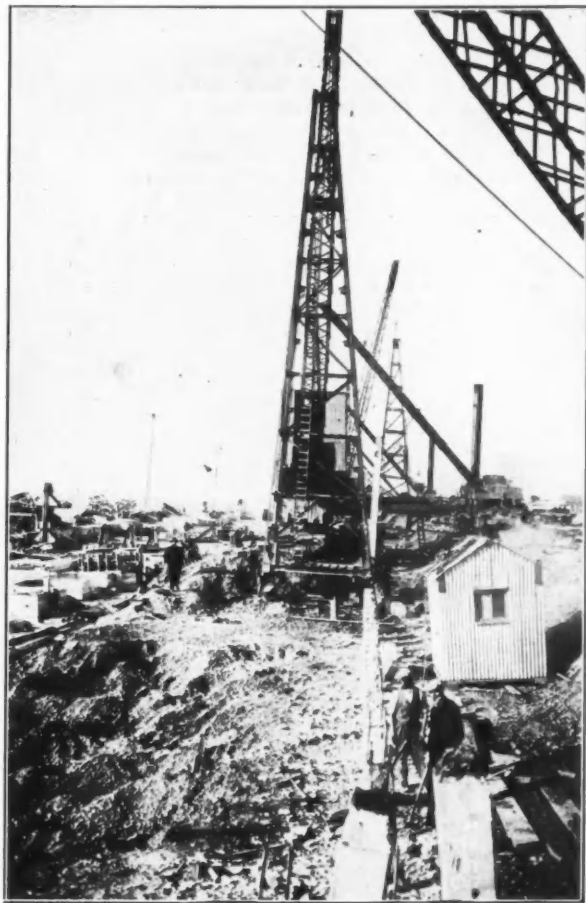
New Graving Dock to be built at Southampton.

THE most important news of the month as affecting the port is the decision of the Southern Railway to build at Southampton a new graving dock, which will be the largest in the world, to accommodate the new giant Cunard liner which is to be built for the Southampton-New York service.

Since the decision was made to build the new liner, which will be of about 70,000 tons, bigger by some 10,000 tons than the present largest liner, the question of dry-docking facilities has engaged the thought and attention of the Cunard Company and the Southern Railway, who are the owners of the Southampton Docks, for it was obviously essential that the new vessel should be able to be dry-docked at her home port.

It was at one time suggested that the 60,000 tons Floating Dock, which has been in use at Southampton for several years, should be lengthened by one or more sections, and naval architects who were consulted advised that that arrangement would be feasible. There was some doubt, however, as to the effect of placing upon the structure, after extension, a vessel several thousand tons heavier than any contemplated when the main portion was designed. New stresses would unquestionably be created, and whether or not they would be effectively provided for in the very considerable alteration would be, to some extent at least, a point to be settled by actual experience.

The decision to build a new graving dock instead of enlarging the "Floater," is of great importance to the port, because of the material extension to the Dock works which it will provide and the large employment of labour which it will entail.



Driving Piles for the First Shed on the part of the Dock Extension which, it is hoped, will be finished early this year.

The new dock will be 1,200-ft. long and 135-ft. wide at the entrance, with a depth of 45-ft. to the top of the blocks at high water neap tides. It will cost much more than even a new "Floater," but the expense of maintenance will be less. Its size will be such that it will meet the requirements of even greater vessels than the new Cunarder, should they ever be built. The first of the new vessels for the Cunard Line is to have a length of 1,018-ft., so that on the suggested dimensions of the new dock there would be an extra 182-ft. to meet any challenge which may come from shipping companies in the future.

It is estimated that the dock will take about three years to construct, and as the new Cunarder will take about the same period to build Southampton will be quite ready to receive the vessel upon her delivery from the yard of Messrs. John Brown and Co., Ltd., of Clydebank.



An Aerial View of part of the "Bank" on which the Monolith Wells can clearly be seen. Giant Grabs go down these Wells and scoop out the Foundation, thus allowing the Monolith Wall to sink to the required depth.

The new graving dock will gain for Southampton the distinction of possessing the biggest dock of this type in the world. At the present time the largest is at Boston, U.S.A., where the Navy Department owns the Commonwealth Drydock. This is 1,200-ft. long—the length of the proposed new Southampton dock—but its breadth at entrance is only 120-ft., which is considerably narrower. It is in this dock that the American liner "Leviathan" is accommodated for her overhauls.

The largest graving dock in the United Kingdom at present is the Gladstone Dock at Liverpool, which has a length of 1,050-ft., and a width of 120-ft. Southampton's largest graving dock at the moment is the Trafalgar Dock, which is 912-ft. in length overall, and has a width at the gates of 100-ft.. The "Floater" is 950-ft. long overall, and has a width at entrance of 134-ft.

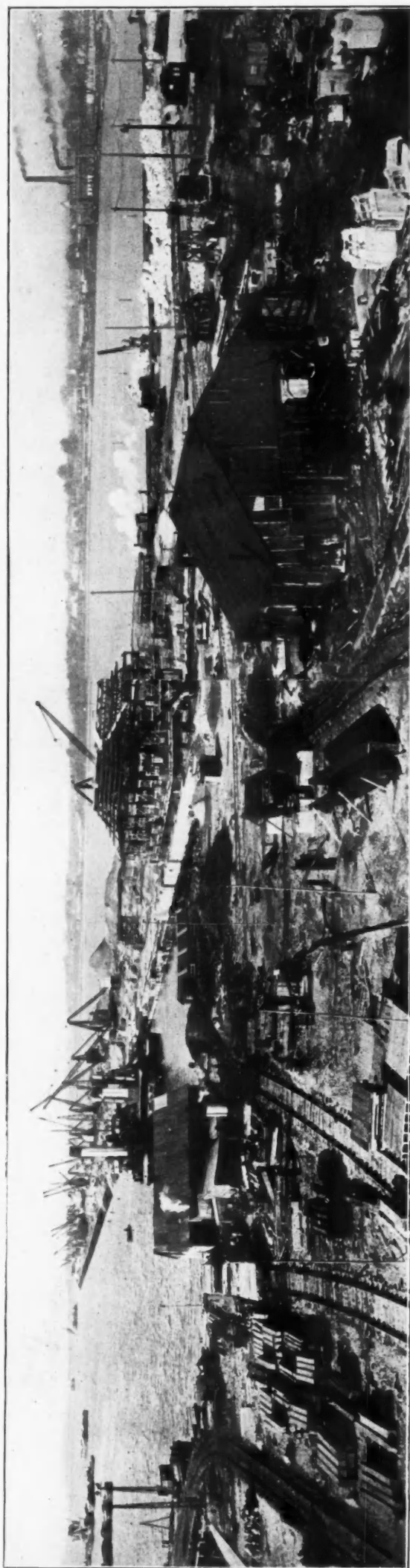
New Vessels to call at Southampton.

A number of new vessels will be seen at the port in the coming year. The coming of the "Dempo," the Rotterdam Lloyd's latest motor ship, will enable an important change to be made in the schedule. At present seven vessels are engaged on the service from Southampton to Batavia, but when the "Dempo" begins, full advantage will be taken of the superior speed of the latest additions to the fleet, so that six of them will be able to maintain the fortnightly service to and from this port, in place of the present seven.

The "Tjerimai" will drop out. She will make her last trip from Southampton on the Java mail route in February, and before she returns to Southampton the "Dempo" will have begun her maiden voyage, for she is due here on March 20th. The "Dempo" is a sister ship of the "Baloeran," of 17,000 tons, which has already proved herself a worthy vessel.

Southampton occupies a big place in the cruising programme of the P. and O. Company, and the "Viceroy of India" and the "Ranchi" will be seen here over a period of three months.

The Nederland Royal Mail Company are speeding up their service from Southampton, and with the dropping out of the "Koningin der Nederlanden" and the "Prins der Neder-

Port of Southampton Topics—continued.

A Panorama of the whole of the Dock Extension, showing Progress of the Work and the Lake to be filled.

landen," no vessel of under 11,000 tons will be engaged on the service. The superior speed of the later ships of the Company have enabled arrangements to be made in the new schedule for six ships to be employed in the place of seven, without reducing the fortnightly service. The new programme by the six liners will start in June with the sailing of the "Johan van Oldenbarnevelt."

Orient Line to use Southampton again.

Once again the Orient Line have decided to make use of Southampton on the homeward run from Australia in the mail passenger service. This has happened for some time at the busiest period of the service, and it is gratifying that the scheme is being renewed whereby the vessels omit their call at Plymouth and come on to Southampton to disembark their passengers.

The "Orontes," which will leave Brisbane on February 19th, will be the first of the vessels to call at Southampton, and she will be followed by the "Oronsay," "Orama," "Orford" and "Otranto," the calls at this port covering the period from the beginning of April to the beginning of June.

Statistics for November show a Decrease.

The Southampton Docks statistics for November, compared with returns for the corresponding month of last year, are somewhat depressing. Eleven of the twelve headings reveal a drop in figures as compared with November, 1929. The vessels inward fell from 241 to 230, whilst outward there was a fall from 240 to 231. The gross tonnage was adversely affected, the aggregate dropping from 1,349,225 tons to 1,164,577 tons inward, and from 1,315,675 tons to 1,190,391 tons outward; the respective deficits being 184,648 tons inward and 125,284 tons outward. The net tonnage dropped by 89,646 tons inward and 53,293 tons outward, the aggregates being 613,706 tons inward against 703,352 tons in November, 1929, and 635,793 tons compared with 689,086 tons outward.

The cargo, both inward and outward, showed a decrease as compared with November, 1929, the fall inward being 4,084 tons, and outward 17,393 tons. Inward freight amounted to 41,295 tons as against 45,319 tons in the corresponding month last year; whilst outward the figure was 37,887 tons as compared with 55,280 tons. The passengers inward showed the only increase in the whole of the monthly statistics, the number rising from 6,618 to 7,220, but this advance was "swamped" by the heavy deficit in outward passengers, the November, 1930, total of 9,131 falling short of that of the corresponding month last year by 3,735. The troop movements also showed a slump, the number inward declining by 1,772 and outward by 181. Actually the figures were 3,265 as compared with 5,037 inward, and 3,208 as against 3,389 outward.

Union Castle Line bringing Big Cargoes to Southampton.

The Union Castle Line's motor ship "Dunbar Castle" inaugurated the homeward call to be made by these vessels when she reached Southampton on December 8th. She landed about 200 passengers, and about 7,000 bales of wool before proceeding on to London. The "Llandaff Castle," another of the new intermediate vessels, called three days later with passengers and a further cargo of wool, and these calls by the intermediate vessels will in future be fortnightly.

The Union Castle vessels have been bringing tremendous cargoes of citrus fruit from the Cape, and in addition to the ordinary vessels, it was necessary to charter special ships to assist in the dealing with the record exportation of fruit this season.

The season's shipments closed about the middle of the month, and 1,600,000 boxes of fruit, principally oranges, have been landed at Southampton. This is 80 per cent. of the whole of the citrus trade between the Cape and this country.

British India Cargo Vessels call at Southampton.

The "Mundra," the first of the British India cargo vessels to make a call at Southampton, made her appearance there during the month, and she was followed by the "Warfield" later in the month.

The Company's new steamer "Kenya," which is to call at Southampton in January, is now fitting out at Glasgow, and she promises to be a very interesting ship, inasmuch as she is designed for a special service. The British India Company have held the postal contract for a service between Bombay, Mombasa, and Durban for many years, and the "Kenya" has been designed to meet the growing demands on this run. The "Kenya," which may not be seen in European waters again for some years, is making a special call at Southampton on the way to her new station to provide facilities for those wishing to travel to Egypt and India. She is a vessel of 10,000 tons.

Docks Extension Work at Southampton.



Some of the Monoliths which have already been sunk to the required depths and have been sealed preparatory to finishing off.



The "Foremost Chief" at work, sucking up "Spoil" from barges alongside and forcing it through a line of pipes, to be deposited on the area to be reclaimed.

The Port of Manchester.

IT should be borne in mind when comparing the revenue for the first eleven months of 1930, viz., £1,176,573 against £1,302,441 in the corresponding period of 1929, that the gross receipts to November 30th, 1930, have been affected by reductions in the company's tolls arising out of the "De-rating" Act. Against the reduction in receipts the company have savings in local rates and from decreases in other expenditure to November 30th which amount approximately to £40,000.

Cotton traffic for the season ending in July last afforded some grounds for satisfaction so far as the relative proportions of the total United Kingdom imports were concerned, for Manchester's percentage of American increased from 22.1 per cent. to 27.8 per cent. Egyptian rose from 51.9 per cent. to 55 per cent. and East Indian from 26.5 per cent. to 39.5 per cent. In spite of these proportionate increases the total volume of cotton fell below that of the previous season, but the figures up to date for the current season show some recovery, and up to the present exceed those of the previous completed season, the increase being accounted for by heavier imports in East Indian cotton, of which this season's direct shipments so far exceed 49,000 bales, against 16,765 in the season 1929/1930.

Referring to Indian cotton in his presidential address to the Manchester Cotton Association in November, Mr. C. E. H. Hobson said that shipowners were now providing very adequate facilities for the shipment of cotton direct to Manchester. This had been the case for many years in regard to America and Egypt. During the past season the sailings from India had improved, and now the Hall Line and the Anchor Line were providing freight. So large were the bookings of Indian cotton to Manchester that these steamers were coming regularly direct to this port. It was an advantage to the trade it meant less handling, quicker dispatch—as many as three loads a day by one motor from the docks to, say Oldham, was not unusual—and there was the saving in transport charges. At the same time the cotton trade was still taking much less advantage of these facilities than other trades had done.

The grain outlook for the port was greatly improved during the year by the extension, in July last, of the Liverpool grain "futures" contract to include Manchester, making grain lying in the Ship Canal Company's elevators or warehouses tenderable against Liverpool "futures" contracts. This extends the facilities for importers and should react favourably on the trade of the port. The port has attracted many large milling concerns, the C.W.S. "Sun" Mill, at Manchester Docks, being probably the largest in the country. An addition to the grain handling and conversion undertakings will be the new flour and provender mills now being erected alongside the docks by Messrs. R. and W. Paul.

In the last completed fruit season, closing early in the year, the Jaffa orange imports touched record figures, and a feature of the fruit traffic during the year was the re-establishment of the direct importation of Australian and New Zealand apples, the "Trojan Star" entering the port with a record cargo.

The shipping services of the port have not only been maintained during the past year, but have been augmented. The establishment by the Pacific Atlantic Line of a service making Manchester the first port of call has added a third regular line to the connections between the western seaboard of North America and Manchester. A regular homeward service from the West Coast of South America is another shipping extension

which took place during the year, and so is that of the Anchor Line, which provides sailings homeward from Bombay and Karachi, in addition to the Hall Line services on the same route.

At Ellesmere Port, where considerable development has been undertaken in the post-war period, there has been a satisfactory growth of inward and outward traffic, and the coaling plant, the most modern of its kind, has proved of great value to ship-owners. The establishment of Bowater's Mersey Paper Mill on this section of the canal has added considerably to the traffic of Ellesmere Port. These works, the first unit (60,000 tons per annum) of which was completed and receiving cargoes of wood pulp towards the close of the year, indicate both the growing demand for newsprint and the value of the Ship Canal zone as an industrial centre. The first cargo of wood pulp to reach the new mills totalled 30,000 bales, weighing 6,000 tons.

At Stanlow, adjoining Ellesmere Port, the forward policy of the Canal Company in providing the most modern equipment for the docking of tankers and the handling of bulk oil has been fully justified.

The port will be favourably affected by the decision come to earlier in the year to extend the steel and iron manufacturing plant at Irlam, following the amalgamation of the Partington Steel and Iron Company with other steel and iron interests. The projected developments will call for an extension of waterside facilities, and a considerable increase of traffic may be anticipated.

In another sphere the establishment by the English and Scottish Joint Co-operative Society of a new tea warehouse at Manchester Docks is an important addition to the undertakings attracted by the port. The warehouse, probably the finest and best equipped of its kind, will supply the co-operative societies throughout the North and increase Manchester's importance as a tea centre. It is eventually to handle 600,000 lbs. of packet tea a week. The Anchor-Brocklebank liner "Makalla" arrived with the first tea cargo for the new warehouse consisting of 84,000 packages, totalling 4,000 tons and valued at £600,000, the largest single consignment in the history of the trade.

The rewards of the Canal Company's consistent policy of development, while gratifying, would no doubt be even greater had times been less depressed, and there must be satisfaction amongst users of the port, both actual and potential, that the port is well provided for handling increased traffic in the most modern and economic way.

Developments in the post-war period include the reconstruction of wharves and warehouses, the oil dock and other works at Stanlow, a new wharf, transit sheds and coal conveyors at Ellesmere Port, a range of reinforced five-storey transit sheds on the north side of No. 9 dock, considerable dock railway development, extensive additions to plant and equipment, and the important work of deepening the canal from 28 to 30 feet from the entrance at Eastham up to Stanlow Oil Port.

Amongst the visitors to the port during the year were the United States Ambassador, General Dawes, and the Prime Minister of New Zealand, Mr. G. W. Forbes. The Institute of Journalists and a delegation of members of the Virginian State Chamber of Commerce also visited the docks. An informal tour of inspection was made by the Crown Prince of Japan.

Mr. H. A. Reed, associated with the Ship Canal since its construction and chief engineer since 1912, resigned in April and was succeeded by Mr. F. B. Greenwood, who joined the company's engineering staff in 1895.

Port of New Orleans.

During the month of November, 1930, there arrived in the port 226 sea-going vessels, 31 less than during November, 1929. There were 222 departures during November, 1930, and 260 during November, 1929, or a decrease of 38 in number.

The gross tonnage of vessels arriving amounted to 978,712 gross tons, or 51,034 gross tons less than in November, 1929. The gross tonnage of vessels using the public wharves was 750,136 or 49,612 gross tons less than in November, 1929.

Cargo paying tollage amounted to 285,610 tons or 88,475 tons less than for the same period last year. There was a decided falling off in banana importations. The amount received during November, 1930, was 1,158,620 bunches, a decrease as compared to the same month last year of 505,989 bunches.

Net dock charges for the month were \$143,382.60, being \$26,953.41 less than the charges received in November, 1929.

Arrivals in the harbour of inland watercraft of more than twenty-five tons for the month of November, 1930, amounted to 243 vessels with an aggregate tonnage of 89,465, this being a decrease of 26 vessels and a net decrease of 9,492 tons.

The Inner Harbour Navigation Canal for the month of November, 1930, reported 819 vessels using the Canal, repre-

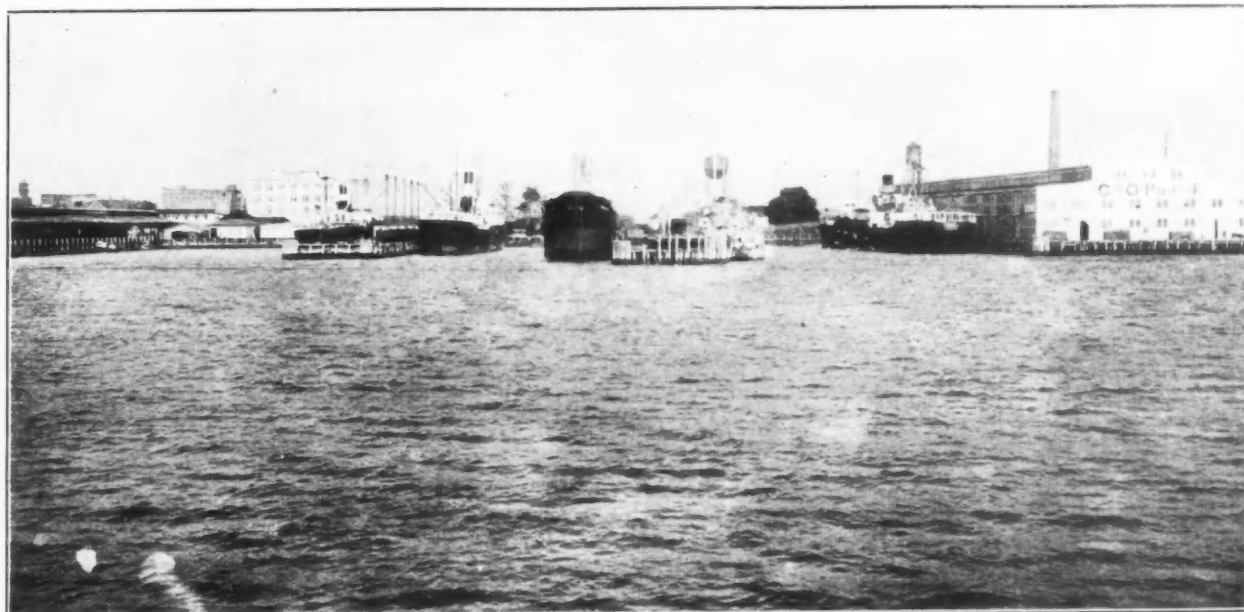
senting a tonnage of 357,998, an increase of 73 in number and 26,616 gross tons, as compared with November, 1929.

The following is a tabulation of the number of vessels and the gross tonnage, arranged by nationalities, which vessels arrived during November, 1930:—

	No. of Vessels.	Gross Tonnage.
American	96	462,118
Belgian	1	5,086
British	19	132,264
Brazilian	2	10,042
Danish	4	10,763
Dutch	3	15,272
French	4	25,868
German	7	26,358
Honduran	25	70,207
Italian	4	21,962
Japanese	3	20,023
Nicaraguan	1	558
Norwegian	14	44,886
Panamanian	1	668
Swedish	2	3,436
	186	849,511

Tidewater Port Facilities of the Chesapeake and Ohio Railway.

The Port of Newport News, Virginia, U.S.A.



Piers Nos. 1, 2, 3 and 4, at Newport News, Virginia.

THE Chesapeake and Ohio Railway extends westward from the Atlantic Seaboard through the States of Virginia, West Virginia, Kentucky, Ohio and Indiana to the ports of Toledo and Chicago on the Great Lakes. It has 2,740 miles of road, including main line and branches. The bulk of the traffic handled is bituminous coal from the coal fields of West Virginia, Ohio and Kentucky, much of which moves eastward to the Atlantic Seaboard, where it is loaded into foreign and coastwise vessels. There is also a large import and export merchandise freight traffic handled between the coast and the interior, particularly the large industrial centres in the Great Lakes district and the Middle West.

The tidewater terminus of the Chesapeake and Ohio is located at the port of Newport News, Va., on the north side of Hampton Roads harbour. This harbour, which lies at the mouth of Chesapeake Bay, about 30 miles from the open sea, is formed by the confluence of the James, Nansemond and Elizabeth rivers and is one of the best in the world. There is sufficient depth of water to accommodate the deepest draft vessels and the channels and anchorage grounds provide ample space for navigating large numbers of vessels without risk of collision or interference. The climate is ideal in this latitude, fogs rarely occur and navigation is never hampered by ice. The rise and fall of the tide averages only two feet.

The port of Newport News has a population of approximately 48,000 people, and in addition to the port facilities of the Chesapeake and Ohio Railway, there is here located the shipyard of the Newport News Shipbuilding and Drydock Company, which is one of the largest plants of its kind in the United States, having facilities for building and repairing all classes of vessels. The port is served regularly by forty-two foreign and coastwise steamship lines in addition to many lines whose ships touch here irregularly. The principal export commodities handled are coal, tobacco, lumber, grain, manufactured articles and starch. The principal imports are pulpwood, manganese ore, copra, manufactured articles and paper. For the seven years ended June 30th, 1929, the exports amounted to 10,822,388 long tons and the imports were 867,276 long tons, or a total of 11,689,664 long tons handled through the port during the seven year period. Newport News ranks sixth in tonnage handled among the principal North Atlantic ports in the United States.

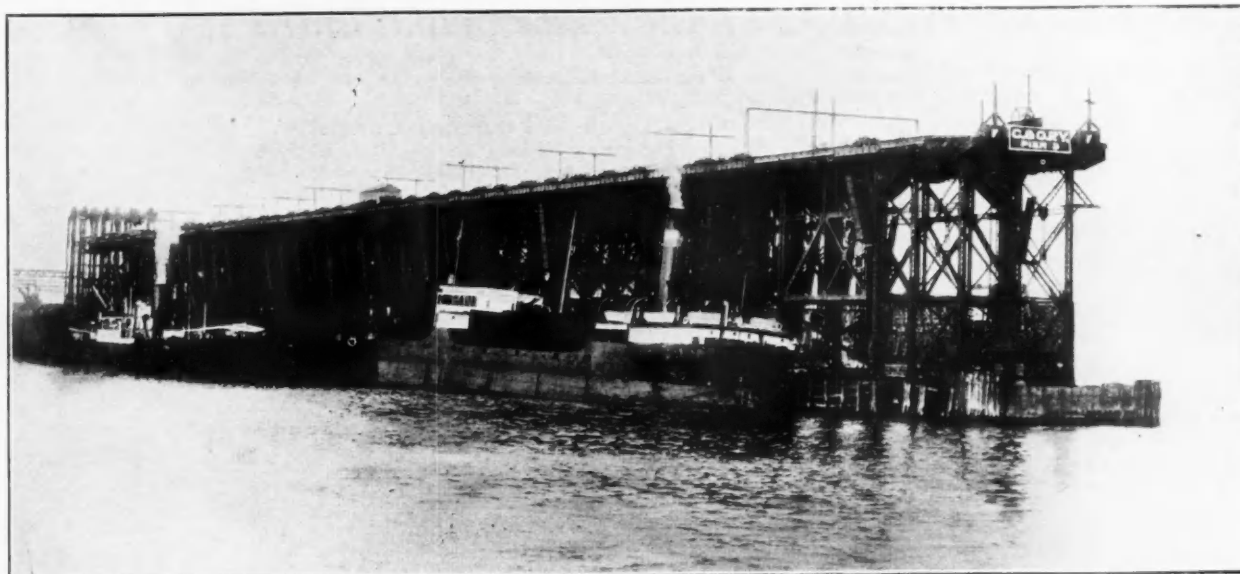
The present Chesapeake and Ohio Railway port facilities comprise a coal pier for the rapid and efficient loading of bituminous coal into vessels, open and covered piers for handling of general merchandise freight and bulk cargoes such as manganese ore, copra and grain, warehouses for the storage of tobacco and other commodities, a grain elevator, and the necessary freight yards for the receiving, classification, storage and forwarding of freight cars.

Bituminous coal constitutes by far the greatest part of the total tonnage handled at the port. This coal is received from the west in trains of about 100 cars or 5,500 net tons. The cars are switched to the classification yard, classified and switched to the coal pier yard preparatory to dumping into



Type of Coal Car Dumper under construction at Newport News, Virginia.

vessels. The coal pier, which is of the high-level elevating type, is a steel structure 1,200-ft. long and 90-ft. high, having berth space for six vessels. In operation, the coal cars run by gravity from the pier yard on to a "mule" pit where they are picked up by an electrically-operated "mule" and run up an incline on to the platen of an oscillating car-dumper,

Tidewater Port Facilities of the Chesapeake and Ohio Railway—continued.*Present Chesapeake and Ohio Railway Coal Pier, Newport News, Virginia.*

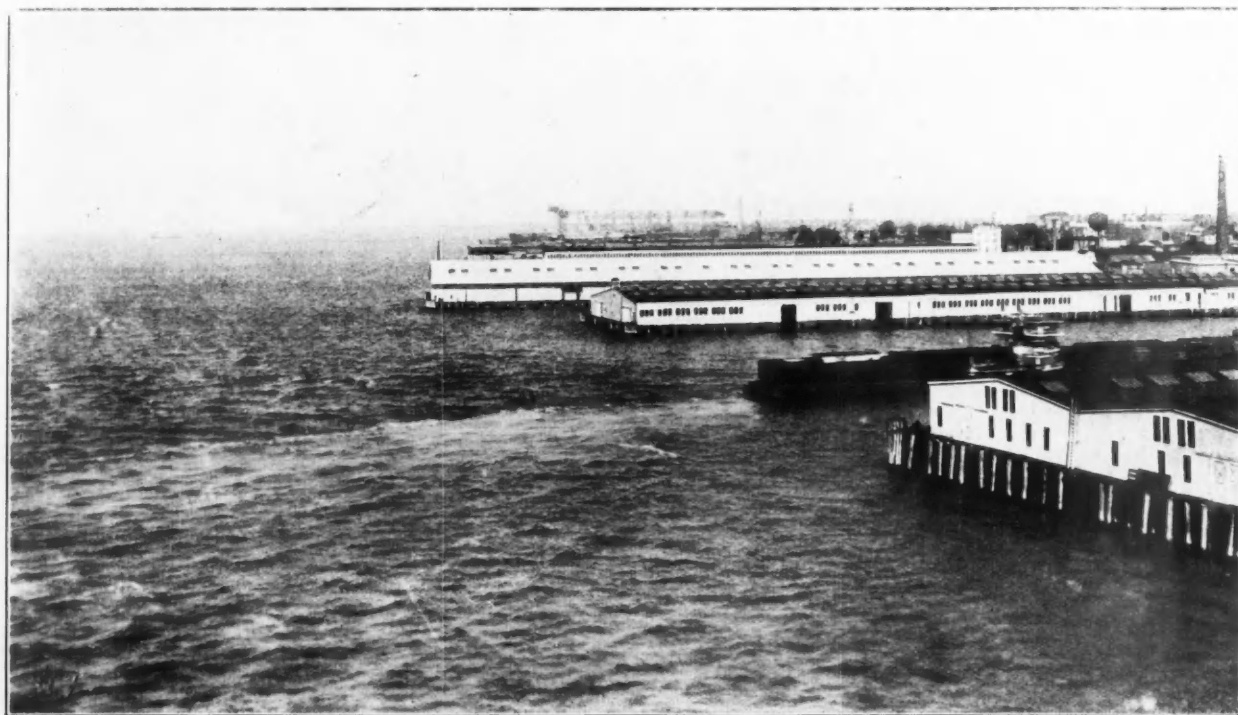
They are clamped to the platen, turned over and their contents dumped into an electrically-operated pier transfer car having a capacity of 100 tons, after which they are turned back, released and run by gravity down an incline on to a switch-back, and thence back to the empty car yard. The loaded transfer car moves from the dumper on to an elevator, is elevated to the top deck of the pier and is run along a track until opposite the hatches of the vessel being loaded. Doors in the bottom of the transfer car are opened and the coal falls into a hopper, or pocket, thence down a telescoping chute into the hold of the vessel. The empty transfer car moves to the outer end of the pier, is switched over and runs by gravity down an inclined track in the centre of the pier back to the dumper to receive the next load.

There are two car dumpers and two elevators, so that both sides of the pier may be worked at the same time. There are 32 coal pockets and chutes on each side of the pier, each pocket having a capacity of 100 tons of coal each. The maximum rated capacity of the pier is 6,000 tons per hour. The maximum rate of dumping has averaged 40,000 tons, or 800 cars, per day in times of peak business. All classes of vessels are loaded or bunkered at this pier with minimum delay in port. The average time required to completely load, trim and bunker an 8,000-ton collier is five hours.

In the past few years a large business has developed at the port in the shipment of specially prepared coals for special

processes such as gas manufacturing, by-product distillation, etc. These special coals must be carefully handled so as to prevent, as far as possible, breakage and deterioration in transit, which would reduce the value of the coals for these special purposes. In order to handle these coals with a minimum amount of breakage and to provide additional dumping facilities for times of maximum business, the Chesapeake and Ohio now has under construction a second coal pier at Newport News. This pier is of the low-level elevating type which is radically different from the present high-level type and which has been successfully used for years on the Great Lakes.

In the operation of the new pier, the coal cars run by gravity from the pier yard to the "mule" pit are run up an incline on to an oscillating dumper by means of the electrically-operated "mule," as in the present pier. However, instead of being turned over and dumped into a transfer car, the dumper is elevated and the coal dumped into a pan which has previously been adjusted to the proper height corresponding to the height of the vessel being loaded. The coal slides from the pan down a telescoping chute into the hold of the vessel. The dumper is then righted, lowered to track level and the coal car released. The car is kicked off the dumper by the next oncoming car and runs by gravity down an inclined track on to a switchback and thence back to the empty car yard, as on the present pier. All machinery is electrically-operated. The "mule," car dumper and elevator are operated from a

*Merchandise Piers at Newport News, Virginia. Shipyard in background.*

Tidewater Port Facilities of the Chesapeake and Ohio Railway.



New Coal Pier at Newport News, Virginia, under construction.



Making and storing concrete piles for use in construction of New Coal Pier at Newport News, Virginia.

Tidewater Port Facilities of the Chesapeake and Ohio Railway—continued.

central control cabin mounted on the steel structure. The pan hoist and chute adjustment is operated from a control cabin mounted on the pan, so that the delivery of coal to the vessel is always directly in view of the operator. Provision is made for the use of a mechanical coal trimmer when required.

Decreased breakage of specially prepared coal is obtained on the new pier by dumping the road coal car directly into the vessel, thus eliminating one handling, and by dumping the coal from the minimum height necessary to get it over the side of the vessel and into the hold. The pan is gradually lowered as the draft of the vessel increases during loading, so that the distance through which the coal falls is not increased. Also the rate of flow of the coal can be controlled to a great extent by proper adjustment of the telescoping chute. The rated dumping capacity of the new pier is 1,500 tons, or 30 cars per hour. It is scheduled for completion in April, 1931. The total cost of the project, including pier, dumper and elevator structure, machinery and the necessary yard tracks, etc., is approximately \$2,000,000.

The port facilities for handling cargoes other than coal include seven merchandise piers varying in length from 500 to 800-ft., five of which are covered and two are open. All have one or more tracks leading to the freight yards adjacent to the waterfront, so that freight cars may be run directly on the piers to the ship's side, thus facilitating the rapid transfer of freight between cars and vessels. The piers have an aggregate berthing space sufficient to accommodate 12 large vessels and a total covered warehouse space of 483,000 square feet.

The two open piers are used for handling bulk cargoes direct between cars and ship's hold. They are equipped with derrick masts and steam winches for unloading or loading such bulk commodities as manganese ore and china clay. They are also equipped with two portable electrically-operated pneumatic unloading machines for handling copra, wood chips and similar commodities. These machines draw the cargo out of the ship's hold through a large flexible tube and discharge it directly into box cars on the pier at a great saving in time and labour over the usual land method of using cargo hoists and buckets. They have a combined capacity of 60 tons per hour.

During the year 1928, 1,279 vessels loaded or discharged cargo at the merchandise piers. The total tonnage handled was approximately 670,000 tons.

There are, at present, 62 warehouses at the port having a combined storage space of 1,250,000 square feet, conveniently located to serve the merchandise piers. Many of the warehouses are designed and constructed for the storage of tobacco during the curing process, which constitutes a large business at Newport News. Others are available for the storage of any import or export commodity and are used principally for such import commodities as wood-pulp, paper, beet-pulp and peat moss, which require storage at the seaboard. Each

warehouse is provided with an independent side track to eliminate delay from interference in handling freight to and from the warehouse. These sidings have an aggregate capacity of approximately 1,000 cars.

In addition to the coal pier, merchandise piers and warehouses at Newport News, there is a grain elevator having a storage capacity of 1,000,000 bushels and an average loading rate of 25,000 bushels per hour. It is located just back of one of the merchandise piers and is one of the fastest loading elevators on the Atlantic coast. Export grain is received at the elevator in box cars, is unloaded, cleaned and dried when necessary, and stored. When required for loading, the grain is conveyed from the elevator out on to the pier by means of belt conveyors and is discharged directly into the hold of the vessel.

In order to promote more efficient handling of freight through the port and to provide additional facilities to take care of the future expansion of business, the Chesapeake and Ohio is now planning the construction of a modern import and export merchandise terminal consisting of a single-deck covered pier and warehouse, a freight yard, and the necessary cargo-handling machinery. The pier is to be 1,200-ft. long and 300-ft. wide, having a 30-ft. apron on each side. It will be of steel and concrete construction throughout, and will have a total covered storage area of 251,100 square feet. There will be two tracks on each apron for the handling of bulk cargoes direct between freight cars and ship's hold, and two depressed tracks in the centre of the pier for the handling of freight direct between the pier shed and cars. Two ramps with electric-driven conveyors will be provided at the outer end of the pier for loading and unloading barges and lighters. Provision will be made for the installation of electric travelling cranes along the sides of the pier, should this be desirable.

The warehouse will also be of steel and concrete construction and will have a total storage area of 260,000 square feet. There will be a track and loading platform running the full length (650-ft.) on each side to provide for the handling of freight between the warehouse and freight cars. It will be located on the bulkhead adjacent to the pier, which arrangement will provide ample berth space for five large vessels, two on each side of the pier and one along the bulkhead in front of the warehouse. The movement of freight between the pier warehouse will be handled by means of tractors and trailers.

The proposed merchandise terminal will increase the total merchandise cargo berthing space at the port from 12 to 17 vessels, or 42 per cent. The total covered storage space for import and export freight will be increased from 1,733,000 square feet to 2,244,000 square feet, or 30 per cent. It is expected to start construction on the proposed terminal early in 1931. The total cost of the project is estimated to be approximately \$6,000,000.

By-Laws brought Up-to-date by Mersey Docks and Harbour Board.

The Mersey Docks and Harbour Board has modernised its by-laws with respect to the regulation of master porters, which provided that in the construction of all the by-laws "steam vessel" or "steamer" shall include any vessel propelled wholly or partly by electricity or other mechanical power. Mr. R. D. Holt, at a recent meeting of the Board, drew attention to what he described as a technical error in the master porters' by-laws. It was contained in a paragraph originally intended to differentiate steamers from sailing ships. Under modern conditions it might be held to differentiate them from motor ships and to indicate that motor vessels were not subject to the regulations mentioned. He moved that as an amendment the words "and motor vessels" should be added after the word "steamers."

The charges levied for watching goods lying on the Liverpool dock quays has been the subject of acute controversy in the port for a considerable time. A concession is now proposed by the Board which has made an addition to the master porters' rates by-law. The addition reads:—"Clause (c).—In calculating the period of forty-eight hours and seventy-two hours" (free period for watching charges) "mentioned in sub-clauses (a) and (b) of this by-law, the following days shall not be included—Sunday, Christmas Day, Good Friday, and legal holidays." The effect of this concession is that the consignee is relieved of watching charges for the legal holidays mentioned, provided such days come within the free periods of 48 hours and 72 hours mentioned in the by-law. Otherwise such days will be charged for. Liverpool Chamber of Commerce has also

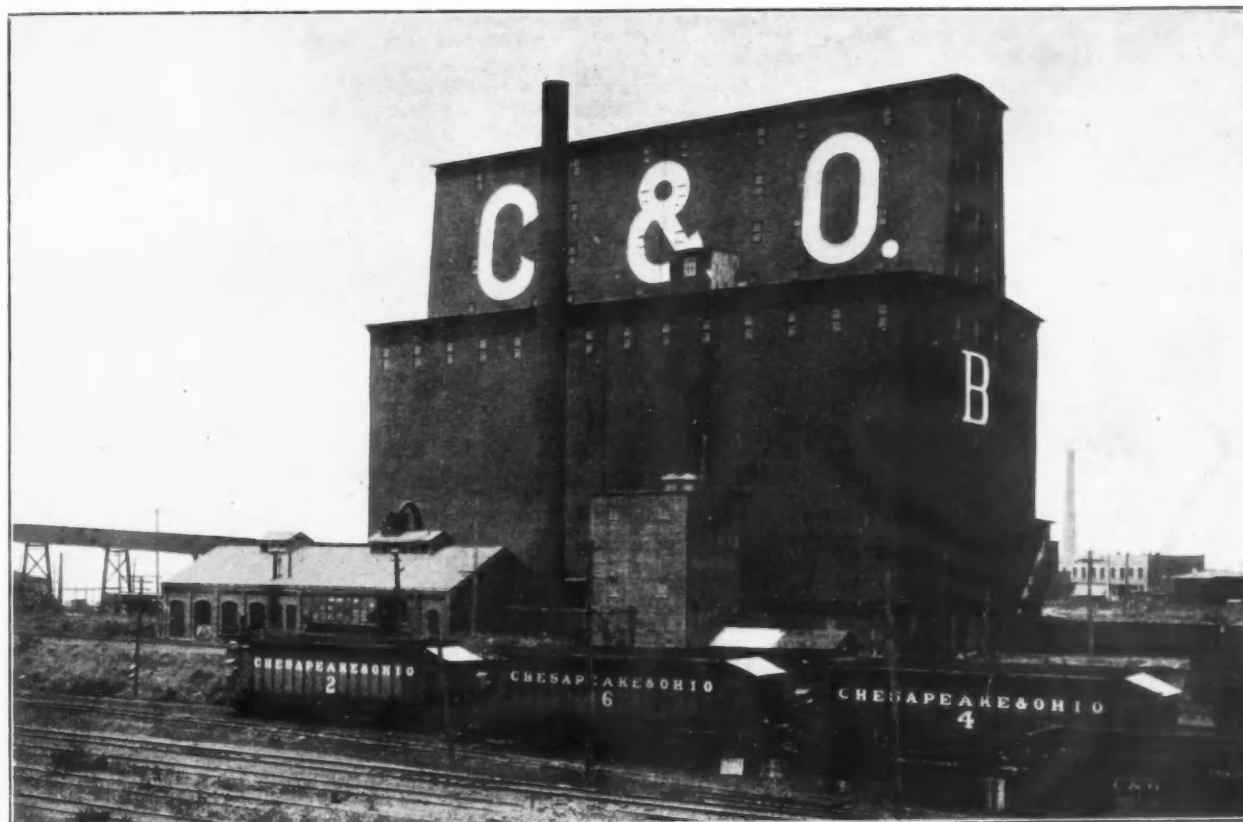
been dealing with the matter. Mr. H. M. Phillips, at the last meeting of the Chamber, said "watching" had become a real scandal in Liverpool. "The sore point with us," he said, "is that while the watching is always charged for, the goods are not always watched. I have had cases myself before the Board and asked them to investigate. At times I have found that the goods have been lying on the quay and that the master porter was not even in occupation of the quay, yet he was charging a pound a day. Mr. W. E. Hewitt said he did not agree with what Mr. Phillips had said. The master porters lost anything up to 5s. a day on every pound on watching day and night. The master porters would welcome watching being taken away altogether."

Mr. R. V. Edwards (chairman of the Transport Committee) said it would never do for the port of Liverpool to do away with watching at the present time. It would put a premium on pilfering. They could not possibly do away with watching altogether, unless they were going to have lock-ups and keys, which they could not have.

London's Million Tons Shipping Increase in Twelve Months.

Almost exactly 1,000,000 tons additional shipping used the Port of London during the twelve months to October, 1930, compared with the 12 months to October, 1929. The respective figures are:—For 1930, 58,333,377 n.r.t.; for 1929, 57,332,956 n.r.t.

Tidewater Port Facilities of the Chesapeake and Ohio Railway.



Grain Elevator at Newport News, Virginia. Coal Pier Transfer Cars in foreground.



Tobacco and Merchandise Warehouses at Newport News, Virginia.

Notes from the North.

Mode Wheel Wharf, Manchester.

EARLY in the New Year a start is likely to be made in adapting Mode Wheel Wharf, Manchester, as a cattle market. Three tracks from the Ship Canal Company's existing railway system will lead to five new unloading docks and sidings. Pens are to be constructed for 7,000 sheep, and the accommodation for 2,000 cattle will be entirely covered. The wharf is already furnished with slaughter houses, chilling rooms, refrigerating chambers and by-product houses, which had been virtually unused since 1912, but which, it is thought, will serve, as they did when Canadian cattle arrived annually by tens of thousands and had to be slaughtered on arrival.

Clarence Dock Power Station.

Recently an 86-ton stator was delivered at Clarence Dock, Liverpool, for installation in the new power station which is being erected there. It was brought on a special 80-ton railway truck from the Metropolitan Vickers works, Trafford Park, Manchester. Because of the width of the load the railway lines on either side had to be kept clear during the journey to Liverpool. The extraordinary load left Trafford Park sidings at 2.20 a.m. on a Sunday and arrived at Waterloo Dock, Liverpool, at 6 a.m., was hauled across the Mersey Docks and Harbour Board's line at 8.30 a.m., and was then unloaded by the power station crane.

Timber Charges at Garston Docks.

Proposals to raise the charges on timber at the Garston railway-owned docks are likely to be strenuously resisted by the Liverpool Timber Trade Association. Colonel C. M. Newell, President of the Association, states that the authorities had not taken the usual step of notifying them that the increase would come into force on a certain date. But if Garston put up its rates, the trade would leave Garston. The subject had been on the carpet for some time and it required careful consideration.

Modern Plant for Liverpool Docks.

In addition to the scheme already mentioned, Mersey Docks and Harbour Board has in hand several minor dock improvements in respect of which the Unemployment Grants Committee has arranged that the Government contribution shall be the payment of full interest on the capital cost for three years, and half interest for a further twelve years. The north shed of Langton Dock and Graving Docks is being modernised by replacing the present four 30-cwt. hydraulic roof cranes by four 30-cwt. electric roof cranes, by providing continuous sliding doors on the quay side of the shed and by the electrification of the graving docks pumping installation. Rail facilities are being provided at the shed at the north end of the west side of the Huskisson Dock, also seven additional jiggers. The Board has decided to equip the Sandon Dock shed with five electric roof cranes and discard three hydraulic roof cranes, which were seriously damaged by fire.

Alterations are being carried out to the shed at the east side of the West Waterloo Dock, including the laying of a cart-way of impervious paving through the shed and the provision of three enlarged doorways on the dock side.

A new 30-ton weighbridge with office has been provided at the north end of the east shed, Prince's Half-tide Dock, to take the place of the old machine removed from the north end of the east side of Prince's Dock, in connection with the Prince's Dock improvements. A new 45-ton weighing machine has been ordered for Canning Dock and the existing machine moved, so that the new office being provided may serve both machines.

New Sand Dredger.

A new sand dredger, the "Rietbok," intended for service at Durban, South Africa, underwent a pumping trial at Light-house Bank, near the Wyre Light, Fleetwood, before returning to Renfrew for sea trials in the Clyde, and then starting upon her long voyage. The vessel, which was built at Renfrew, Scotland, is 380-ft. long and capable of filling herself with 5,000 tons of sand in the hour.

Dock Board Personnel.

Mr. A. W. Bibby, chairman of the Mersey Docks and Harbour Board, stated recently that he had been a member of the Board for thirty-eight years, and for the last eighteen had been the Government's nominee. Times moved and representations changed, however, and it had been intimated that a Labour member should represent the Government on the Board. Of the twenty-four members of the Dock Board, twenty are elected by the shipowners and trade associations and four are nominated by the Ministry of Transport. For a long time Labour has been promised one of the four Ministry seats, and this has been discussed on several occasions. Mr. C. McVey, a former official of the National Seamen's Union, has been elected to the Board.

Morecambe Harbour.

Morecambe-Heysham Corporation has decided to continue negotiations with the L.M.S. Railway Company concerning the old harbour site and the land adjoining. Morecambe for some time has been greatly concerned with that grave eyesore on the sea front—the old harbour. Of late years the chief sphere of usefulness for the harbour, which is the property of the L.M.S. Railway Company, has been the unromantic trade of shipbreaking. This has meant the conversion of an important part of Morecambe's front into a glorified marine store. The opportunity has been given for the ratepayers to buy the old harbour for £34,500 and a portion of the land for £26,000. On top of this total of £60,500 would come the merging of the site into the Promenade, so that the bill in the end would not be far short of £100,000.

New Sea Wall Proposed.

Caernarvon Borough Surveyor has prepared a report on a scheme for the development of the Aber shore. In the course of it he says the present sea wall, which is of a very rough character and is good enough for the present needs, would be hardly attractive enough or strong enough to form a part of this proposed scheme. A much heavier and better built wall would be necessary, and no doubt some piles would have to be introduced to be sure of a solid foundation. The design of the new wall would be a very important factor in the new scheme. In fact, everything depends upon it. He suggests that if the scheme is to be proceeded with a firm of reinforced concrete experts be asked to get out a design and give a price for doing the work. It is impossible at present to give any estimate of the cost, but immediately the committee are in a position to decide finally upon the scheme to be adopted, working drawings will be got out and a detailed estimate of the cost submitted.

Dock Board Hopper on Revetment.

Some excitement occurred recently on the Hopper No. 12 of the Mersey Docks and Harbour Board. The hopper, which is specially fitted to carry stone, has been engaged in bringing the stone from North Wales and depositing it in certain given positions near the East Crosby Training Wall, known as the revetment. One morning, while occupied in this pursuit, during the fog, the crew suddenly felt something unusual below, and on examination it was found that the hopper was lying hard on the wall. Despite all efforts to refloat her, she remained hard and fast. The crew remained on board for some hours, but later, near low water, the situation was considered precarious and it was decided that they should leave the ship and return later during the flood tide. Then a gang of navvies was engaged in the hope that it would be possible to lighten the hopper, but eventually it was found that this could not be done. At the next high tide the hopper was again boarded and was safely refloated. She was taken to the Brunswick Dock and appeared little worse for the mishap.

A Sly Dig at Manchester.

Speaking at the annual meeting of the Liverpool Shipping and Forwarding Agents' Association, Mr. G. C. Horton, the chairman, said: "It is gratifying to report that the Dock Board have been able to reduce some of the charges on ships and cargoes. We are pressing for other reductions, but recognise that the high rate of interest the Board have to pay for their bonds, etc., must be a very severe handicap to reductions in charges. I understand that about 60 per cent. of their total income is absorbed by interest charges. Eventually the Board, and likewise the city, may be able to benefit by cheaper money."

"Some of you may have noticed in your not too far off journeys the posters reading '— goods for — docks.' (This is obviously an allusion to Manchester.) The Liverpool Shipping and Forwarding Agents' Association sound a somewhat different slogan: 'The world's goods for Liverpool docks,' and—like the boy in the picture—will not be happy until its object be achieved."

New Dock Weighbridges.

For the purpose of facilitating the weighing of the extra large-sized lorries now employed on the haulage of goods to and from the Liverpool docks, the Mersey Docks and Harbour Board has installed new high capacity weighing machines at various points. At the south-east corner of Canning Dock, a 25-ton weighing machine and a 45-ton weighing machine have been installed.

Wallasey Sea Wall.

Wallasey Works Committee has accepted the tender amounting to £342,000 of Messrs. Edmund, Nuttall Sons, Ltd., Trafford Park, Manchester, for the carrying out of contract No. 1 for the promenade scheme, embracing the construction of the sea wall and boating lake. The work necessary for the construction of open-air baths will form contract No. 2, and tenders will be invited in due course.

*Notes from the North—continued.***Northern Harbours Exhibition.**

Preparations are being made for the 1931 Northern Harbours and Navigation Exhibition at Kiel. Liverpool Corporation has already received a letter from Ausstellungs-Gesellschaft, Hamburg, requesting the Corporation to participate in the exhibition which is to take place under the protectorate of the cities of Kiel and Libeck. The Corporation has referred the matter to the Mersey Docks and Harbour Board.

Bromborough Dock.

Messrs. Lever Bros., Ltd., who have just opened a new dock at Bromborough, which has cost £1,000,000, have established a special department to sell and develop the land surrounding the dock estate. This dock was a conception of the late Lord Leverhulme. It was begun about six years ago, but the early contractors found the task beyond them, and for the last two years Messrs. Lever Bros. have carried on this great undertaking under the guidance of their consulting engineers, Messrs. A. J. Barry and Partners. The dock, which has an area of about 20 acres with a depth of water sufficient for sea-going vessels up to 10,000 tons, has been constructed mainly to facilitate the handling of large inward and outward traffic in connection with the company's works at Port Sunlight and Bromborough, but will also be available for industries to be established round its borders. The dock estate itself covers 145 acres and there is a river frontage of $1\frac{1}{2}$ miles, with quay space of 2,400-ft. The approach from the river consists of a short channel leading to an entrance lock 75-ft. in width and having a clear length of 120-ft. between caissons. The depth of water over the lock sill will be 35-ft. at high water ordinary spring tides and 27-ft. at high water neap tides. There are two timber jetties 190-ft. and 240-ft. long respectively outside the lock entrance for the assistance of vessels entering the dock.

Manchester's Growing Trade.

Although cotton imports into this country during the past season counted in actual bales were smaller than in the previous year, Manchester's percentage of the total imports was larger than in any other season. The total quantity of all growths of cotton landed at the Manchester Docks last season was 635,000 bales, against 680,000 bales in the previous season. American accounted for 346,000 bales, against 419,000; Egyptian for 162,000, against 188,000; and Indian, 117,000, against 50,000 bales. Shipowners are now providing very adequate facilities for the shipment of cotton direct to Manchester.

Dock Board Chairman takes a Glance Back.

Mr. A. W. Bibby, of Bibby Bros. and Co., and managing owner of the Bibby Steamship Co., Ltd., who was the representative of the Ministry of Transport on the Mersey Docks and Harbour Board, of which body he is chairman, tells of the remarkable advance of the port of Liverpool since he first entered business in 1861. In those days the George's and Prince's Docks were the busiest. Then the George's Dock was filled in for improvement, and part of the site is occupied by the Liver Building and the Dock Board and Cunard Offices. He could remember as a boy going in an open boat from the Liverpool side and up the inlet on the Wallasey side, where the Birkenhead Docks have since been built. The Mersey went through that inlet right up to where the Great Float is. At that time there were no ferries worth speaking of, and all who wanted to cross to Rock Ferry and the other points on that side of the river went in rowing boats. There were then no docks whatever on that side, and the shore was quite open with quays. The Mersey, like the Dee, he said, is frequently liable to immense quantities of sand being swept into the channels during westerly gales, and in its case this is aggravated by the enormous amount of sewerage, a large proportion solid, which is dumped into the river by the various Corporations on its banks, amounting at present to some 600,000 tons a year. This is sure to increase considerably with the extensive building in all directions, all of which houses are sewered, whereas in olden times the refuse went into the land. No doubt this in the early future will be cured by filtration; indeed, some of the latest building schemes have so treated their sewage. At present enormous expense is involved in dredging the channels, not altogether satisfactorily, and if this expense were avoided the rates could be reduced considerably and so remove the cry that the port is a dear one compared to many of its competitors.

New Lights and Signals.

Lever Brothers, Ltd., have issued notices concerning the establishment of permanent lights and signals at the new Bromborough Dock. A fog bell will be situated at the river end of the jetty on the north side of the lock, giving two strokes with an interval of one second's silence between each stroke, followed by an interval of ten seconds' silence between each group of two strokes, the total period being thirteen seconds. The fog bell will be sounded from two-and-a-half hours before high water to two-and-a-half hours after high water.

Liverpool Docks Three Years Plan.

Good progress is being made on both banks of the river Mersey with the £2,000,000 docks improvement scheme of the Mersey Docks and Harbour Board. Apart from the big dock extension alongside the East Float at Birkenhead and the modernisation and development of the Clarence Half-tide and Trafalgar Docks on the Liverpool side, four bridges are to be built for Birkenhead and one for Liverpool. Clarence Half-tide Dock and Graving Dock basin will be considerably altered and developed by the construction of new quay walls, new bridges and passages. The Trafalgar Dock is to be removed and the passages leading to the West Waterloo and Salisbury Docks will be deepened and enlarged, thus giving a clear run through from Prince's Dock to the Sandon Dock system, and then, if required, to the great Gladstone Dock. Work on this part of the scheme was commenced in June, when employment was found for about 100 men, and has been gradually developed until now about 560 are employed on this section. Wallasey Pool is now being filled in, and on this work some 600 men are at work. The contract for the bridges for Birkenhead is being carried out by Sir William Arrol and Co., Ltd., and the Liverpool bridge—which will form part of the main dock road—in Regent Road is being constructed by Messrs. Dorman, Long and Co., Ltd. It is expected that work on the foundations of these bridges will be put in hand at an early date. This scheme will take some three years to complete.

New Zealand Prime Minister a Guest of Docks Board.

The Right Hon. G. W. Forbes, Prime Minister of New Zealand, was entertained by the Mersey Docks and Harbour Board when he visited Liverpool recently. On a visit to the Provision Exchange Mr. Forbes was accompanied by Mr. L. A. P. Warner, general manager of the Mersey Dock Board; Colonel Hawkins, his assistant; and Mr. J. W. Dart and Mr. W. S. Crichton, members of the Board. Mr. Forbes said the potential value of Liverpool as a growing market for New Zealand produce was becoming very important, and they realised the port's fine equipment and the great size of the population round about it. In the past New Zealand produce had gone to the one big centre in London, and had been distributed from there. Now, with the keen competition, he recognised they had got to look at their distribution, which was just as important as cutting down cost of production. "It seems to me," he added, "that in the ports you have here, if we can send more direct shipments, it would mean cutting down a great deal of the expense. It is only a business proposition that if we can get direct access to a large consuming public, that must be the business-like methods of handling our products. Our Board have gone into this matter, and the question of our marketing will receive very close attention. It seems reasonable, practical and commonsense to get delivery direct with the minimum of handling expenses."

Future of Birkenhead Ferry.

In the early New Year a decision is expected to be reached on the future of the Birkenhead ferries, which is now the subject of conferences between the Birkenhead Ferries Committee and the Mersey Tunnel Joint Committee. A final decision whether the ferries in whole or in part should be transferred to the Tunnel Committee is considered necessary to be reached at least twelve months before the opening of the tunnel. The question is of importance to Birkenhead ratepayers, inasmuch as the ferries have for several years been contributing over £12,000 per annum to the relief of rates. In Birkenhead it is being asked that advantage is likely to accrue to the town as a result of the opening of the tunnel. There is a strong feeling in certain quarters against the transfer of the profitable passenger service to the Tunnel Committee, but the goods ferry, which will be mainly used by horse traffic after the new tunnel is opened, will certainly show a heavy decline in receipts.

Caernarvon Harbour Trust.

At the last meeting of the Caernarvon Harbour Trust it was reported that there had been an increase in revenue during October, but this had now been offset by a decrease in rents of offices, yards and wharves. The superintendent (Capt. Richard Jones) reported that he received a message last month from the Llanddwyn pilots to the effect that the fairway buoy had disappeared. The pilots subsequently reported that the buoy was ashore on the rocks north of Llanddwyn, and when he (Capt. Jones) went to Llanddwyn he found it was badly damaged, and he feared that salvage under the circumstances was hopeless. The superintendent said he had arranged to replace the buoy with another.

Preston—the Petrol Port.

The Ribble Committee of the Preston Corporation reports that the present petrol storage capacity at the docks is equal to 27,602 tons or 8,281,210 gallons. In course of erection are tanks for a further 10,450 tons or 3,135,000 gallons, which will give a total of 38,052 tons or 11,416,210 gallons. In a recent week 10,000 tons of petrol were discharged from the docks.

*Notes from the North—continued.***Reduced Portage Rates.**

Mersey Docks and Harbour Board has adopted a reduced master porters' rate in respect of empty palm oil or similar-sized casks.

River Weaver Navigation.

River Weaver Navigation Trustees, in their report for the year ending November 20th, record a substantial falling off in revenue. It was, however, satisfactory to find that there was a credit balance after payment of all revenue charges, including debt repayment, income tax and "wear and tear." The total tonnage and tolls, with the total revenue on the navigation for the past three years ended December 31st, 1929, and for 1930 (approx.) were as follows:—

Jan. to Dec.	Tons	Tolls	Total Revenue
1927	799,188	60,433	76,482
1928	762,986	58,107	71,257
1929	782,010	61,794	74,319
1930	680,733	46,123	61,386 (approx.)

Special repairs have been done to various lengths of the navigation, the principal being the repair of the river bank below Dutton sluices, at a cost of £1,800. The Manchester Ship Canal has commuted its liability for dredging the Weston Point docks and basins for £2,000, and £100 was being set aside annually to meet the future cost of this dredging. The proposed reconstruction of the Acton swing bridge and other contingent works had progressed, and an application had been made jointly with the Cheshire County Council for the scheme to be sanctioned under the Public Works Facilities Act, 1930, by the Ministry of Transport, after which, it was expected, it would go forward with other provisional orders for Parliamentary sanction. The trustees, under agreement, were contributing £5,000 towards the cost of the swing bridge.

New River Mersey Works.

Work on the £150,000 scheme to prevent flooding of the River Mersey will, it is expected, begin early in the New Year. The scheme, before it can be put into operation, requires to be submitted to and approved by the Rivers Mersey and Irwell Catchment Board. The Board will consist of representatives of the counties of Cheshire, Derbyshire and Lancashire, and the county boroughs of Bolton, Manchester, Oldham, Salford and Stockport and four other representatives appointed by the Minister of Health representing internal drainage boards. Mr. C. H. J. Clayton, M.Inst.C.E., F.G.S., has reported on the scheme prepared jointly by Mr. R. W. Eaton and Capt. G. Wright. With regard to the dimensions of the main channel, Mr. Clayton reports that he is without sufficient information or local knowledge to offer a very decided figure, but he considers that at the lower end of the new cuts there should be a top width of 100-ft., a bottom width of 40-ft., a depth of 17-ft., and a gradient approximating to 1 in 2,640. The provision of two weirs is recommended. As regards the overflow channel which starts at the weir above Barfoot Bridge, just below the Manchester City boundary, he considers that a reduction in the height of the weir crest level by 18 inches will be sufficient, and that a smaller overflow channel than the one originally proposed will suffice.

Peel Dock Scheme.

Mr. W. H. Blaker, M.Inst.C.E., engineer to the Isle of Man Harbour Board, has prepared a report dealing with the proposal to convert a portion of the inner harbour at Peel into a wet dock, in which a number of the big passenger ships belonging to the Steam Packet Company could be laid up during the winter. He says it is necessary to provide a depth of 16-ft. of water, so that boats should never "take the ground." This would mean deepening the harbour by 4-ft., and any rock dredging would be confined to a fairly narrow strip along the west quay. The dimensions of the proposed area of the laying up are:—length, 900-ft.; narrowest part, 160-ft.; widest part, 350-ft. The deepening of the harbour would mean that the foundation of the east quay would be left high and dry, and would have to be protected by steel piling, but if it is proved that the west quay wall is founded on rock, no steel piling will be necessary. The east quay wall, which is of sandstone, would have to be made impervious to water to make it water-tight under a head of 16-ft. of water, which would be done by placing a "blanket" of mass concrete against the wall. Should the harbour not prove watertight under a head of 16-ft. of water, it may be necessary to deepen it a further 2-ft. and cover the whole area with reinforced concrete. No provision is made in the estimates for the erection of workshops and store-houses which would be necessary if the company elected to have repairs carried out at Peel, and if the river water does not balance the loss of water from natural causes pumps will have to be provided to maintain the required 16-ft. of water. The rough preliminary estimated cost of the scheme is £40,000, which

does not include the provision of timber dolphins to moor steamers in the deepened area. The report ends: "As the whole scheme is bound to be a very costly one and there are many parts which will require very careful investigation and consideration, the preliminaries to its actual commencement will take some considerable time, and it is obvious that it would be impossible to put it in hand this year."

New Docks for Fleetwood.

The area of the Wyre Dock at Fleetwood will be increased from 26 to 46 acres, as a result of the big expansion plans for which the L.M.S. Railway Company are seeking powers in a Bill to be placed before Parliament about February next. An entirely new dock enclosing a further 20 acres of water space outside the existing dock is proposed at a cost estimated at between £500,000 and £750,000. The proposed new dock will have an average width of 900-ft. and a length of 850-ft. As compared with the present fish dock, this will be 50-ft. longer and 200-ft. greater in width. A covered staging, about 3,000-ft. in length for the landing and marketing of catches, will be erected. The entrance lock pit with a length of 400-ft. and a width of 70-ft., as compared with the present lock pit, which is 250-ft. in length and 50-ft. in width, will be capable of accommodating nine steam trawlers at once. The dock sill, as the bottom of the entrance lock pit is termed, will be several feet lower than the existing one and 2-ft. below dead low water at ordinary spring tides. The present sill will be removed. This will be one of the most important improvements, as it will permit the biggest trawlers to enter and leave the dock on all tides. To protect the new dock walls, which will be of concrete, training banks will be built out into the river Wyre, and for a similar purpose a jetty, 350-ft. in length, will project from the entrance lock pit.

The provisional plans for the construction of a new dock at Fleetwood have been discussed by a conference of representatives of the Fleetwood Fishing Vessel Owners' Association and the L.M.S. Railway Company. The provisional plans for the new dock have been placed before the Owners' Association, and they have approved their general principles, but numerous points that have been raised have still to receive consideration. A Bill promoted by the L.M.S. Railway Company to obtain the necessary powers for the new dock will probably be placed before Parliament next February. In conjunction with it an unemployment grant will be sought.

Mersey Tunnel Progress.

Two hundred and fifty men, working in shifts day and night, are rapidly completing the tunnel work on the Birkenhead side of the river Mersey. The engineers have reported to the Mersey Tunnel Joint Committee that underground tunnelling on the Birkenhead side of the river is practically finished. Concreting is in hand at three points, and 70 per cent. of the concrete road-ing had been finished. Of the contract amount of £749,075 allowed for the work on the Birkenhead side of the river, the estimated value of the work accomplished to date was £657,000, or 87.7 per cent. of the total. Of the under-river work (the boring and lining of the full 44-ft. diameter tunnel), 97.7 per cent. has been completed. Progress on the Liverpool side is much slower, chiefly on account of the great difficulty of boring through the soft ground leading to the Old Haymarket, where a serious subsidence occurred. By means of the great tunnelling shield, the working face is being advanced inch by inch, and 72.6 per cent. of the work has been finished. Nearly 50 per cent. of the concrete roadway under the river has been completed. Of the total work now in hand, 82 per cent. has been completed and 930 men are directly employed.

Sir Thomas White, chairman of the Mersey Tunnel Committee, announces that the official approximate date for the opening for traffic of the Mersey Road Tunnel, which was commenced in December, 1925, and is to cost over £5,000,000, is the middle of June, 1932. Over 80 per cent. of the Birkenhead half of the tunnel has been completed. That includes the openings and things of that description. The engineers are now about to embark on their experiments as to which kind of ventilation is likely to be best for the purpose. The equipment of the tunnel—lighting and so on—is also in hand.

Lectures on Ports and Docks.

Included in the winter programme of the City of London College is a course of lectures on Ports and Docks, to be delivered (in succession to Mr. H. J. Deane) by Mr. A. T. Best, formerly of the Port of London Authority and later of the British Petroleum Company, now engaged in the Dock and Harbour department of Messrs. Rendel, Palmer and Tritton, consulting engineers. There are to be ten lectures, illustrated with slides, commencing on Thursday evening 22nd January and forming part of a general course on shipping, of which a syllabus may be had on application to the College.

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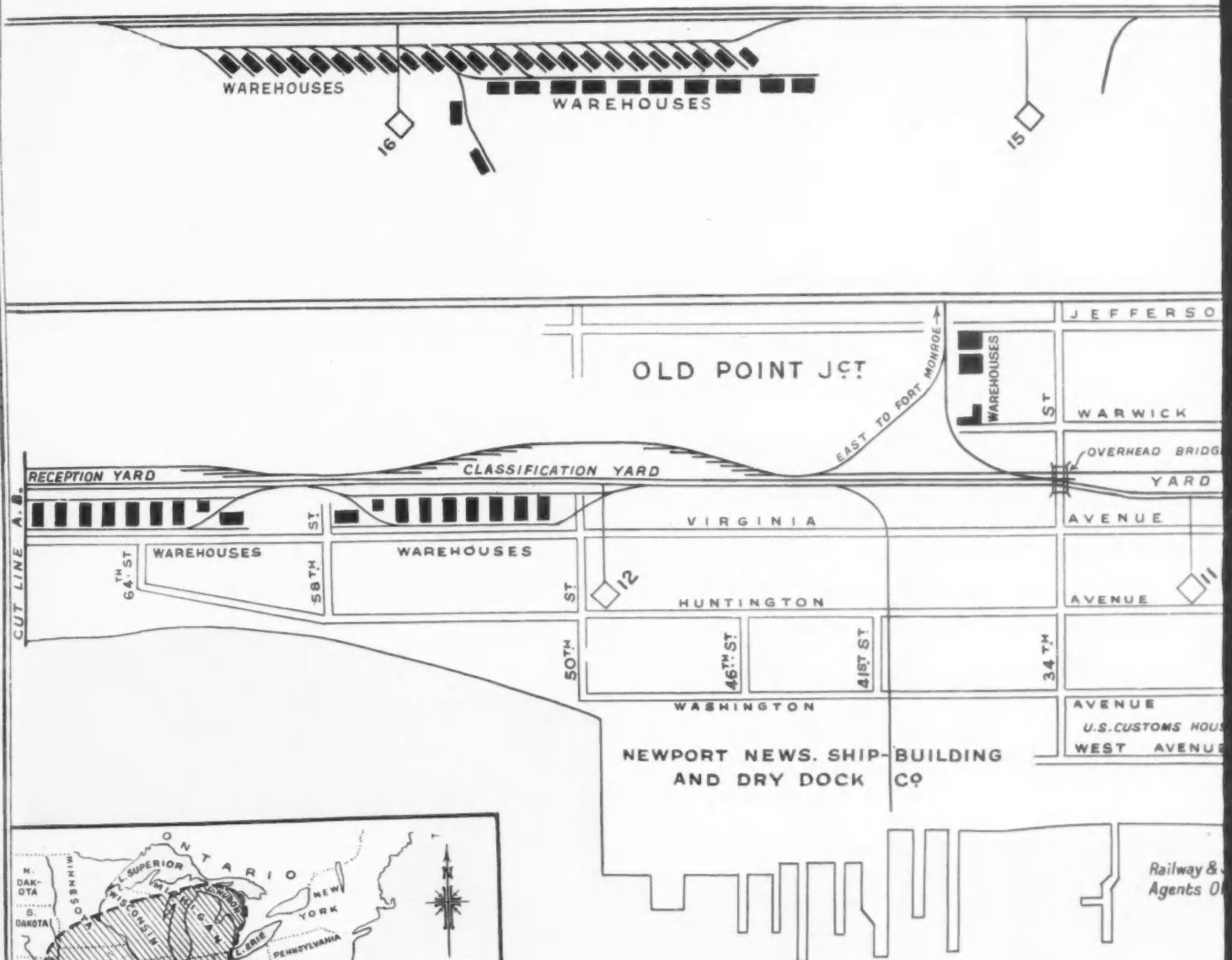
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RAILWAY PORT FACILITIES AT NEWPORT

UNDER THE JURISDICTION OF THE CHESAPEAKE & OHIO RAILWAY COMPANY, NEWPORT

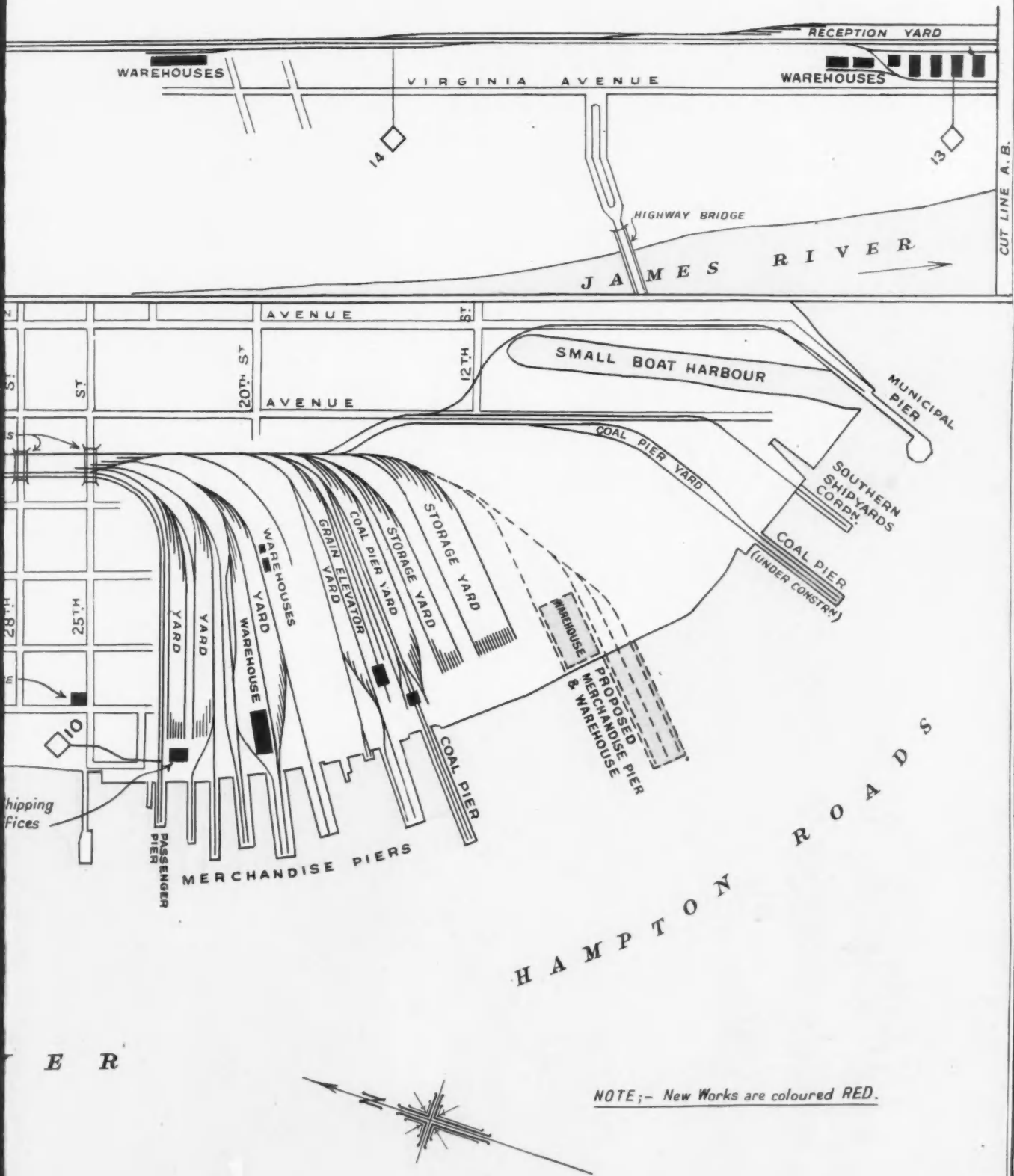


KEY MAP.

PORT HARBOUR AUTHORITY, JANUARY, 1931.

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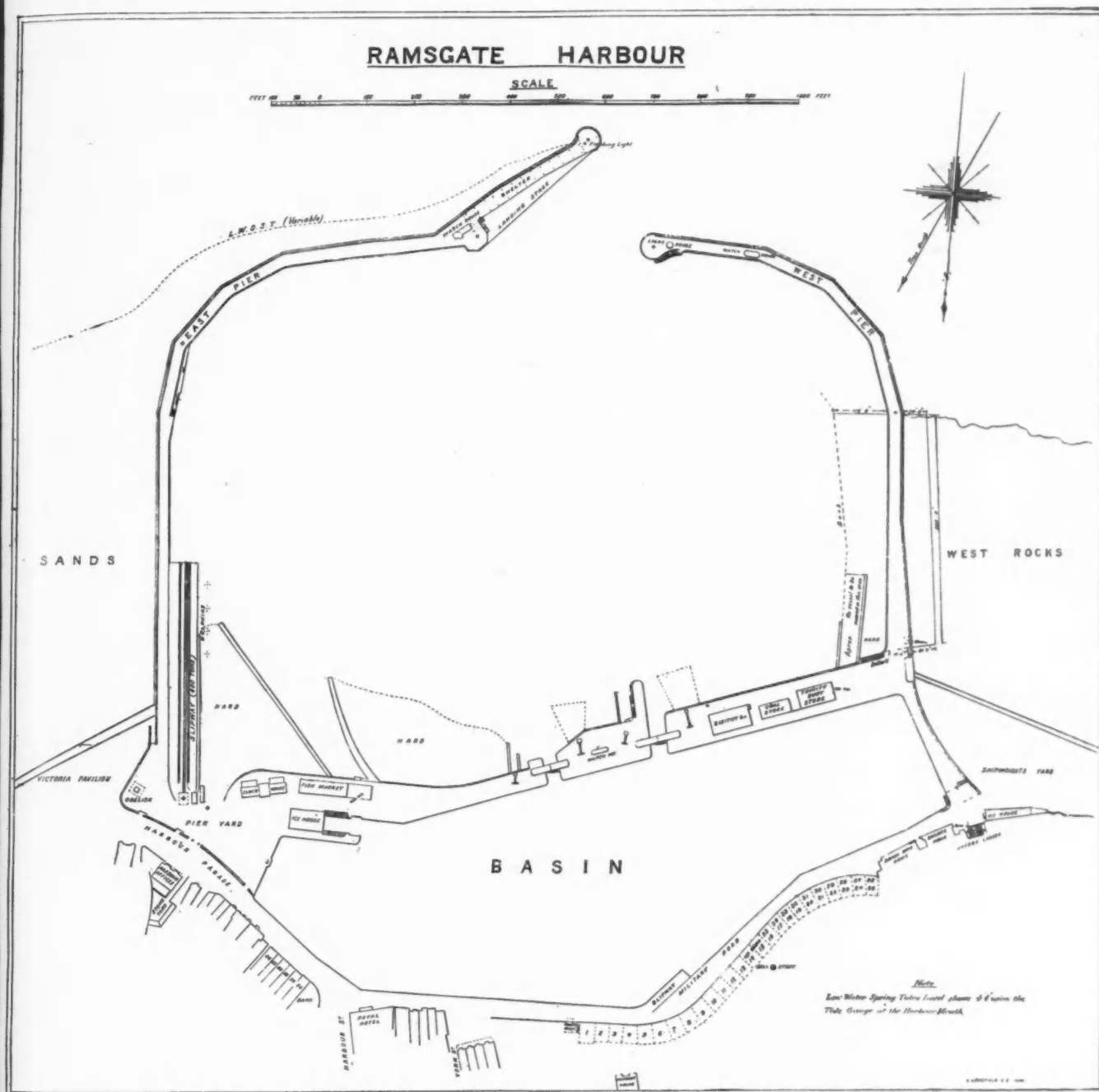
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Ramsgate Harbour.



THE Harbour of Ramsgate was constructed by the Ramsgate Harbour Trustees under an Act, 1749 (22 Geo. II.). The work started in 1750, but the harbour was not completed until 1790.

As the harbour was a Royal Harbour of Refuge, the Trustees were allowed to levy tolls on passing vessels. As long as these tolls were leviable the revenue of the harbour was in a flourishing condition, but upon their proposed abolition by the Harbours and Passing Tolls Act, 1861 (24 and 25 Vict., c. 47), the Trustees became apprehensive as to the financial position, and by the same measure the harbour undertaking was transferred to the Board of Trade on January 1st, 1862. The harbour continued under the jurisdiction of the Board of Trade until 1919, when it was transferred to the Ministry of Transport, who are now the governing authority.

The harbour consists of an east and west pier of solid masonry, 1,900 and 1,520-ft. long respectively, enclosing an outer tidal harbour of 34 acres and an inner harbour or basin of 11½ acres. These harbours are divided by a cross wall 1,300-ft. long, having two entrances for admission of ships into the basin—one of 40-ft. width between copings and the other 30-ft. The outer harbour has 4,200-ft. of lineal quayage with an entrance having a width of 200-ft. between the piers. The basin has a quayage of 3,200 lineal feet.

Both piers have lighthouses at their outward extremity. There are also guiding lights on the East and West Cliffs.

Depths of water in the outer harbour vary from 16-ft. at neaps to 20-ft. at springs. Wind is a great factor in influencing the tides. With strong north-westerly winds spring tides will

occasionally rise to 22-ft. and neap tides to 18 or 19-ft., but with strong southerly gales neap tides have been known to rise to only 14-ft. Mean spring low water level is 5-ft., as shown by tide gauge, but tides will sometimes fall to 3-ft. with strong southerly winds. The depth of water on the sill of the inner basin at high water may be taken at 5-ft. less than water on the tide gauge at the outer harbour entrance. South-westerly weather prevails for nine months of the year. The harbour is serviceable for refuge purposes to vessels seeking shelter during heavy weather or coming in for repairs.

Ramsgate Harbour is known technically as a "dry," or rather "dry-at-low-water" harbour.

The harbour depths are maintained by means of a powerful steam dredger, which removes on an average about 70,000 tons of soil from the harbour annually. A steam tug is maintained (during the summer months) for the purpose of towing out mud hoppers, or any other vessel that may require its services. No dredging operations are carried out during winter months in normal circumstances.

The harbour works are adequately maintained under the supervision of a resident engineer, and have been thoroughly overhauled during the last few years at considerable expense, repairs having been carried out to the piers, landing stages and basin gates.

In the outer harbour there is a patent slipway 480-ft. long with a carriage of 100-ft., capable of dealing with vessels up to 450 tons weight, and all kinds of repairs to damaged vessels can be carried out, the harbour being well equipped for repair works.

Ramsgate Harbour—continued.

The principal imports are coal, timber, stone, bricks and flour. There is also a considerable fishing trade, the fleet consisting of 17 steam trawlers and a number of fishing smacks and motor vessels. Fishing proceeds throughout the year, but the busy season is from November to February.

A new fish market has been constructed since the war, with adequate accommodation for dealing with the traffic. There are up-to-date offices and all facilities for the landing and despatch of fish from the market.

During the summer season, commencing in June, the harbour and the town are thronged with visitors, and the normal population of 36,000 is augmented to about 70,000.

The General Steam Navigation Company run passenger steamers from London to Ramsgate daily, landing and embarking many thousands of passengers, and numerous pleasure craft

make use of the harbour for embarking and disembarking passengers and making short trips to sea.

Suitable commercial vessels should not be more than 180 to 200-ft. in length, 30-ft. beam and 12-ft. draft, the height of water on the cill at high water varying from 10 to 15-ft. in accordance with state of tide. Occasionally timber vessels have to be lightened in the outer harbour to save time, cargo being landed on the west pier, otherwise all cargo vessels discharge in the inner basin. Transit of cargo from the quays is carried out by motor lorries, carts and timber tugs. Mr. J. Philpott, 61, Hardres Street, Ramsgate, provides all stevedoring facilities. Trinity and local pilots are available.

An excellent description of the procedure in entering the port is provided in the "Channel Pilot," Part 1, South Coast of England, 10th Edition, 1908, page 301.

*Irish Harbour Matters.**Dredger Sinks in River Lee.*

BY the sinking of the dredger "The Owenaenora" at her station alongside the Tivoli Wharf, the Cork Harbour Commissioners will be put to considerable expense. This vessel was laid up in dock for repairs for several weeks, and had only been at work dredging in the navigable channel when she sank. The repairs cost £3,000, and it will probably cost £5,000 to refloat her. Meanwhile the pumping station erected in connection with the Tivoli mud flats reclamation scheme is idle, for, owing to the obstruction by the "Owenaenora," no other dredger can approach the station to discharge mud and silt from the river bed. When the "Owenaenora" is raised she must be refitted, for her cranes have been cut off the decks and other gear removed. Her services will be lost to the Board for two months. The Board has also to meet a demand for £5,000 for repairs to another dredger, the "Owenable," now lying in Rushbrooke Docks. Meanwhile the dredging of the river Lee is in arrear to the extent of several thousand tons, and with two dredgers in a helpless condition dredging arrears are steadily growing, while the navigable channel is filling up at the rate of a thousand tons a day. In addition to this expense it is stated that the turnover in revenue this year is £3,000 down compared with last year. The whole financial and economical position of the Board will be discussed in committee.

Belfast Shipping Returns. New Harbour Scheme.

During the period from January 1st to November 15th, 1930, there were increases in the tonnage of every class of vessel calling at Belfast. The greatest increase occurred in the case of coastwise and cross-Channel steamers—2,699,583 tons, as compared with 2,471,138 tons for the same period in 1929. Foreign vessels showed an increase of 67,844, the total tonnage being 634,933. The total tonnage of all vessels was 3,223,553, an increase of 338,837.

In connection with the new dock scheme the consulting engineer of the Belfast Harbour Board has intimated that the formation of banks to enclose sufficient slobland area on the Co. Down side of the harbour to accommodate the entire amount of spoil to be dealt with is now nearing completion. To expedite the dredging side of the work it has been decided by the Board that two laid-up dredgers should be placed in commission again.

Progress of Galway Port.

Inward and outward trade at the port of Galway is improving so much that, according to Capt. Tieressy, harbour master, the Galway Harbour Commissioners have decided to adopt a scheme involving a sum of £35,000 for improving the approaches to the docks, as well as the docks themselves. These improvements are based on a plan proposed by Sir John Griffith in 1914, and elaborated later in conjunction with Sir Cyril Kirkpatrick, engineer to the Port and Docks Board, London. A serious check to development is the barrier of hard rock which lies outside the dock entrance for a distance of about 400-ft. The cost of submarine drilling and blasting would be prohibitive, but by using a sub-aqueous rock-cutting plant, successfully employed at the Manchester Ship Canal, expenses will be brought within practical limits. Other alterations include the connection of the deep-water dock and the old commercial dock, besides the building of a pier at the north-east entrance.

At present goods shipped to Galway have to be discharged in Belfast and transhipped in smaller vessels; consignments of cattle, too, are limited to the size of steamers that can enter the dock. Under the new schemes the large grain steamers will be able to call direct, while the export of cattle will be greatly increased. With the completion of these improvements it is believed that the future prosperity is assured.

Limerick Dock Railway.

Mr. P. J. Floyd, traffic manager, Great Southern Railways, Ireland, visited Limerick City recently and discussed with the Committee of the Harbour Board matters connected with the proposed docks railway line. It is understood that questions in regard to running powers, tonnage, freight charges, and through rates to and from the port were considered. Mr. Floyd examined the route of the proposed line, which will connect the docks with the railway system at Carey's Road.

Rushbrooke Dockyard to Close.

If Rushbrooke Dockyard closes down, as its owners have threatened to do in consequence of insufficient work, Cork Harbour will be without a repair shop. The owners of this dockyard—Messrs. Beardmore and Co., Ltd., London—state that it has been kept open at an annual loss of several thousand pounds per annum, and that unless £30,000 to £35,000 worth of work is found they must withdraw. As a consequence the new motor vessel "Innesfallen," owned by the City of Cork Steamship Co., has been sent to Liverpool for overhaul and repainting. This company had agreed to give its work of repair and overhaul to Rushbrooke, as did the Head Line, Belfast, and Sir Samuel Kelly, the Belfast shipowner.

The position has been fully explained to President Cosgrave, but in the absence of sufficient work it would seem as if matters would have to take their course.

Shipyard to Close for Two Months.

Messrs. Workman, Clark (1928), Ltd., have decided to close their Belfast shipyard for a period not exceeding two months from December 20th. The engine works will be closed for one month from the same date. This decision is due to the depressed state of the shipping industry. The firm have now on hand 75,000 tons dead weight of shipping, including the "Kosmos II." (25,000 tons dead weight), the world's largest whaling factory. Four large tankers are also building, the owners of which have no desire for immediate delivery.

Canadian Audiences hear about the Port of London.

Reports from Canada show that Mr. A. E. Willey, who has been touring the Dominion since the end of the summer as Public Relations Officer for the Port of London Authority, has had a very warm welcome and successful trip. A leading article in "The Calgary Herald," after commenting upon Mr. Willey's address on the development and trade of the Port of London, continues:—

"In this, as in many other enterprises, John Bull is proving that he is very wide awake in matters of trade. Proof of this fact may convince many Canadians that they have been labouring under a false impression concerning the Mother Country. This has been created largely through the steady circulation of the very misleading statement that the Englishman somehow manages to 'muddle through.' Mr. Willey convinced his Calgary audience, at any rate, that the largest port in the world is a going concern and fully abreast of the times in the installation of modern shipping facilities.

"The men who control its destinies are displaying commendable enterprise in conveying this information on to the British Dominions."

In Moose Jaw, Saskatchewan, Mr. Willey had an audience of about 700, some of whom travelled a distance of 50 miles to hear his address and see a film of the port's activities.

North-East Coast Notes.

New Chairman of the Tyne Improvement Commission.

AFTER five years' very valuable service Lord Kirkley has retired from the chairmanship of the Tyne Improvement Commission, and has been succeeded by Mr. H. P. Everett, who has been deputy chairman since 1925. Sir Arthur M. Sutherland was appointed deputy chairman. These changes were made at the November meeting of the Commission.

Mr. Everett, in expressing his thanks for the honour done to him, paid tribute to the work of Lord Kirkley and his predecessors, and took the opportunity to make a review of the port's position.

"No port can afford to stand still," he said. "Either we go forward or we go back, and I feel sure that I carry you with me when I say that this Board's only intention is that we go forward. Time was when we regarded some of the riparian and other enterprises in the port as competitive with each other and with us. We have changed that attitude of mind. We now take the larger view. We look upon the Tyne as one unit and work towards complete co-operation with every interest and every enterprise. Let me say at once that we shall welcome most cordially, and give every encouragement to, any project which may be submitted to us, and which will add to and help the trade and commerce of the Tyne and the district which it serves."

Tyne Development Scheme.

Referring to the development schemes, he said: "Some of you may wonder why the development of Jarrow Slake does not progress more rapidly, and repeated references to it are made outside. But this is a scheme which cannot be rushed. We are not idle. There are engineering difficulties to be overcome. Already we have spent a large sum in boring for foundations. Plans, as you know, have been prepared (and any of you can see them at any time); the Government is ready with financial support and, in fact, urging us to commence operations. But I am sure that you will agree with me that, however desirable the new quays will be, and however attractive the Government support, we must be satisfied that the proposition is sound and likely to be of value to this Commission, and will not embarrass our successors.

"Allied with this project is Tyne Dock. It is no secret that we have been negotiating with the London and North-Eastern Railway Co. for its transference to this Board. We have had many meetings, figures have been examined and are still under scrutiny. The company wish only for a fair transfer, and you may rest assured that, if and when this comes before you, it will be upon a sound basis only. With the Jarrow Slake scheme further expenditure may also be necessary on entrance channel dredging. It may be desirable to provide 35-ft. at low water. To attain such a depth will be expensive. Altogether a large sum is involved. We must, therefore, walk warily, but be assured that this great scheme has not been pigeon-holed; it is very much in the front of the minds of those who have the responsibility of advising you."

Mr. Everett referred to port charges and said it could not be too widely known that in regard to port dues the Tyne compared more than favourably with other ports, but there were other charges—those for loading, discharging, etc., which were much too high under present conditions, and they hoped soon to tackle the problem. Speaking of the acute depression in the area he said: "It is perhaps too much to expect that at any time unemployment will completely disappear, but we all most earnestly hope that we shall see before long a substantial decrease in the present figures. We are not yet a decaying community; our shipbuilding, engineering and other industries will return to prosperity. Our coal exports will reach high figures once more—and at 17,000,000 tons it is no small quantity now. Our general goods traffic shows signs of expansion. Indeed, some classes have reached much higher figures than last year."

In December it was announced that the Ministry of Transport had elected Lord Kirkley a life member of the Tyne Commission.

New Wear Oil Depot.

There is to be another oil storage depot opened at Sunderland, the River Wear Commissioners, at their meeting in November, having granted a lease of an acre of land near Hendon Dock to the British Oil Storage Co., Ltd., Manchester. This company will be the seventh to open a depot in Sunderland, into which 88,000 tons of oil were imported last year.

The Commissioners have ordered two barges from Messrs. J. Crown and Sons, Ltd., Sunderland. Towards the cost of

£12,000 the Government Unemployment Grants Committee has promised a grant of 50 per cent. of the interest for 15 years.

Questions connected with the proposed deep water quay were considered by the Sunderland Town Council in November. Mr. W. H. S. Tripp, engineer to the River Wear Commission, was appointed to supervise the carrying out of the work of building the quay at a salary at the rate of £800 per year.

Alderman F. W. Taylor, vice-chairman of the Commission, in supporting the proposal, deprecated some critical references which had been made regarding the Commissioners. "It has been said," he remarked, "that if it were not for the Corporation the Commissioners would have to put up the shutters. That day is coming very soon. As vice-chairman, I can say that the day is not far off when this Council will take hold of the whole affair and run it, and I say it will be a good thing for Sunderland when that does come about. You are not building the quay for the Commissioners. You are putting it up for the town of Sunderland."

Blyth, Wear and Tees Trade.

The coal shipments from Blyth during October amounted to 422,882 tons, compared with 501,101 tons for 1929 and 425,488 tons for 1913. The total coal shipments for the ten months ended October 31 are as follow: 1930, 3,995,562 tons; 1929, 4,615,465 tons; 1913, 3,978,079 tons. These figures show a decrease of 14 per cent. over 1929, but practically no change in comparison with the 1913 figures.

The shipments from the Wear for the first ten months were: Coal, 3,899,018 tons, a decrease of 7½ per cent. on last year; coke, 78,895 tons, an increase of 10 per cent. on 1929. Other exports at 74,058 tons showed an increase of 28,771 tons, while the imports had increased from 317,375 tons in 1929 to 326,031 tons this year.

For the 28th time in succession Sir Hugh Bell, Teeside's veteran ironmaster, was elected chairman of the Tees Conservancy Commission in December. He reviewed the operations of the Authority during the year ended October 31st last and observed that the accounts were very satisfactory, having regard to the fact that the year had been characterised by extreme depression. Compared with a year ago there was a decrease in receipts of £13,477, an increase in expenditure of £7,611, and a surplus on the year of £17,919. The decrease in receipts was due entirely to the fall in river dues caused by the depression in trade. A saving of £2,321 had been effected in management and maintenance. The total cost of dredging amounted to £57,712, against £56,205 in the previous year.

Smart Loading Work.

A particularly good dispatch of coal was given recently to the steamer "Chevy Chase" at Tyne Dock. The vessel arrived at 7.35 p.m. to take 4,310 tons of coal and 91 tons of bunkers. Loading began at 8.10 p.m. and was completed at 5.55 a.m. The actual time occupied was 5 hours 25 minutes, an average rate of 167 tons per hour.

Another smart piece of work is reported from the South Docks, Sunderland. The steamer "Blackhill" arrived from Bilbao with a cargo of 3,735 tons of iron ore for the Consett Iron Co. at 6.15 p.m. on November 26th last, began discharging at 9 p.m., and finished at 5.30 a.m. on November 28th. She went straight to No. 19 staith, and after taking a full cargo of coal and bunkers sailed on November 29th, after having been in the port 76 hours in all.

Personalia.

Colonel Hugh M. Stobart has resigned his position as a River Wear Commissioner. He was elected in 1904, when there were three generations of the Stobart family on the Board.

The death occurred in December of Mr. W. E. Scott, Newcastle. Until his retirement Mr. Scott was secretary and fitter to the Wallsend and Hebburn Coal Co., Ltd.

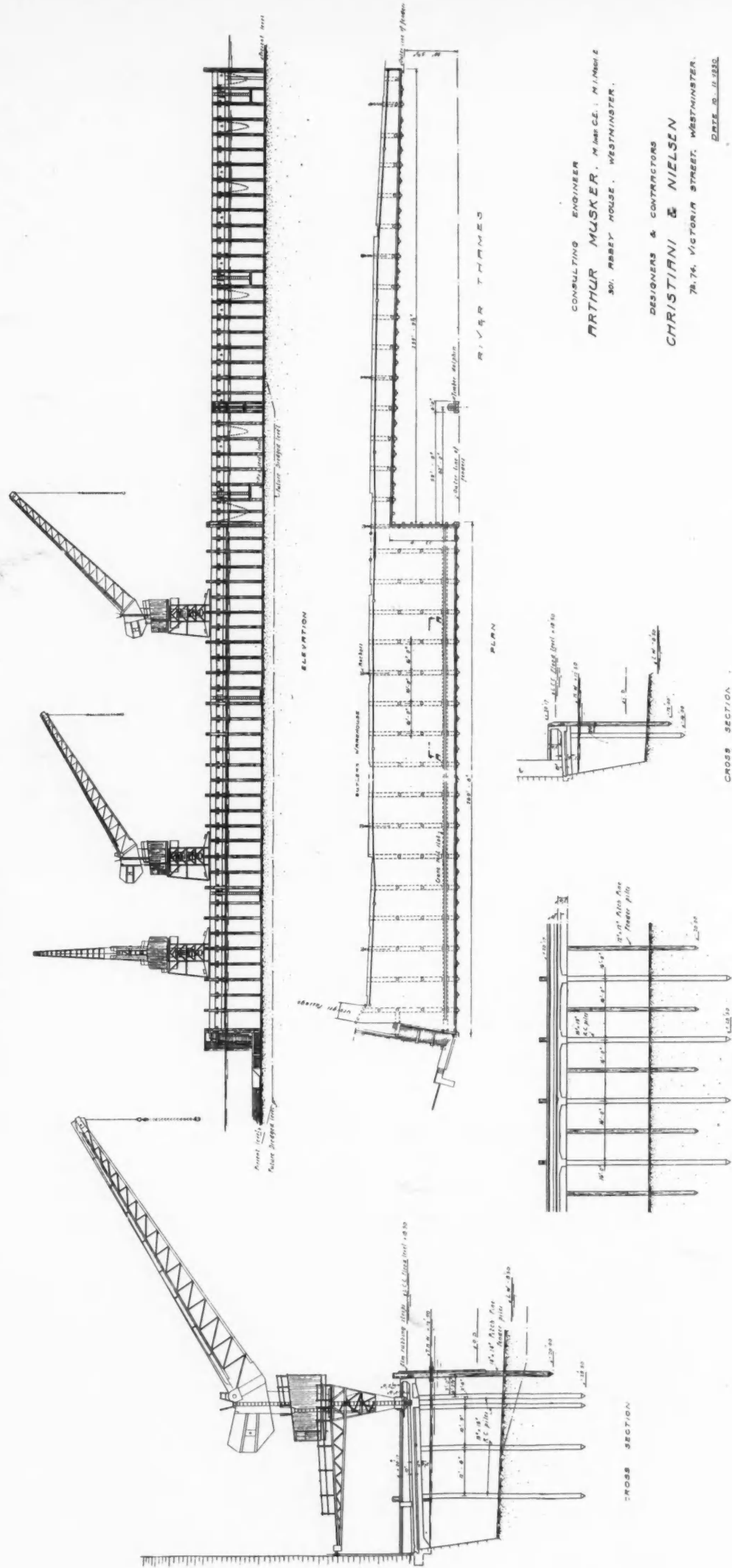
Alderman J. R. Lawson, a member of the Tyne Port Sanitary Authority since 1898, has been re-elected as chairman at the annual meeting in Newcastle.

Captain William Durham, who was for 24 years in the service of the Tyne-Tees Steam Shipping Co., died at his residence, The Anchorage, Norham-on-Tweed.

Councillor Crosthwaite, the well-known tug owner, has been elected a Middlesbrough Corporation representative on the Tees Conservancy Commission.

Interesting Wharf Construction at Tower Bridge.

BUTLER'S WHARF



CONSULTING ENGINEER
ARTHUR MUSKER, M.I.C.E., M.I.Naval E.
 301, ABBEY HOUSE, WESTMINSTER.

DESIGNERS & CONTRACTORS
CHRISTIANI & NIELSEN
 79, 76, VICTORIA STREET, WESTMINSTER.
 DATE: 10. 11. 1930.

Interesting Wharf Construction at Tower Bridge.

IN December of 1929, Messrs. Butler's Wharf, Ltd., decided to replace their old timber staging, in front of their well-known warehouses at Tower Bridge, with a modern and strong construction in reinforced concrete. It was also of particular importance to the firm that the width of the staging should be increased and that access by lorry should be obtained by extending the jetty to include the entrance to George's Passage. The extent of the new jetty can be seen from the drawing and includes a portion with a width of about 45-ft. and a length of 260-ft. 8-in., with a narrower extension of about 12-ft. wide and 230-ft. 9-in. long. The whole of the new jetty is built of reinforced concrete and consists of 87 reinforced concrete piles supporting a reinforced concrete deck with a 2-ft. 6-in. high reinforced concrete flood prevention wall on the outside edge of the deck. The reinforced concrete piles are 15-in. by 15-in. in cross section, reinforced with $1\frac{1}{2}$ -in. steel bars in the corners and rigidly hooped. The length of the piles is about 45-ft., which permits the piles to penetrate 20-ft. into the ground. The driving of the piles proved to be very difficult, as they had to pass partly through an old chalk bed and partly through ballast and were driven to so firm a set in the bottom that the calculated carrying capacity gave a factor of safety of six over the load the piles were intended to carry. The deck was calculated for a live load of 3 cwt. per square foot, uniformly distributed or a point load of 5 tons placed anywhere on the slab. In addition hereto the jetty can carry the point loads exercised by the three $1\frac{1}{2}$ -ton semi-portal electric cranes. These loads, including 25 per cent., come to nearly 100 tons per crane.

The level of the deck is 16.35-ft. O.D. at the entrance to George's Passage. As, however, the latest flood regulations, introduced by the London County Council, demand a wall high enough to stem the highest known flood, it became necessary to build the floor prevention wall to level 20.17-ft. O.D. The wall has, of course, been built strong enough to resist the water pressure, and it may also be mentioned that the deck slabs have been reinforced so as to safely resist any water pressure from below. For the prevention of any water forcing its way to the areas behind the wharf during high flood, particular attention had to be given to the connection between the wharf and the building. At this point a deep groove was cut into the granite stones forming a cill on the building and these grooves were completely filled with concrete of a rich mixture. The drains of the wharf disposing of any rain

fender piles and partly by the construction of a separate timber dolphin. The fender piles are supplied in ample number and are in fact spaced only 8-ft., the intention being to prevent the nose of any barge penetrating beyond the front line of the wharf and damaging any of the reinforced concrete piles. At the north end of the wharf a stairway has been provided so that ferry boats may land passengers at any state of the tide and the cross-river traffic may thus be maintained.



View of the Wharf.



View showing the three $1\frac{1}{2}$ -ton Cranes installed by Stothert & Pitt, Ltd.

water discharge through gullies direct into the river, but these outlets are so constructed that by the rise of the flood a valve would automatically close the opening and thus prevent any inrush of water through that source.

The wharf is generally frequented by 300-ft. steamers and mooring facilities are provided partly by extension of the

The work of replacing the old timber structure with the new reinforced concrete structure was carried out without stopping the traffic of the shipping for one single hour, and it should, in this connection, be particularly mentioned that steamers were continuously at the wharf discharging their cargoes. Messrs. Christiani and Nielsen, of 72, Victoria Street, S.W.1, were responsible for the whole of the reinforced concrete work. Three $1\frac{1}{2}$ -ton semi-portal electric cranes fitted with "Muskier-Davison" level luffing gear, and made by Stothert and Pitt, Ltd., of Bath, were installed on the wharf.

These cranes have the motions of hoisting, slewing and level luffing, and are each operated by a separate motor. The electrical supply is 410 volts, direct current. The leading particulars are as follows:—

Working load, $1\frac{1}{2}$ tons; test load, 2½ tons; maximum radius, 74-ft.; minimum radius, 20-ft.; height of lift, hook above Quay, 65-ft.; depth of lower, hook below Quay, 35-ft.; clearance under gantry above Quay, 17-ft.

Speed of hoisting $1\frac{1}{2}$ tons, 300-ft. per min.; slewing, $1\frac{1}{4}$ revs. per min.; luffing, 200-ft. per min.

Hoist motor, 40 h.p. at 680 r.p.m.; slew motor, 10 h.p. at 710 r.p.m.; luff motor, 6 h.p. at 710 r.p.m.

All gearing is of steel, except the slewing worm wheel, which is of phosphor bronze; and all gear teeth are machine cut.

Hoist Gear.—Double reduction spur gear. Hoist motor fitted with "Laurence Scott" combined floating magnetic and centrifugal brake—totally enclosed—½ hour rated. Hoist controller, Allen West and Co., drum reversing. Hoist resistance, 5-minute rated. Self re-setting limit switch to prevent over-winding.

Slew Gear.—Worm and spur gearing and pin rack. Slipping clutch in worm wheel. Hand-operated brake. Crane slews on two cast iron circular skids inside a machined path built into the truck top. Special footstep bearing at bottom of mast fitted with friction washers in an oil well.

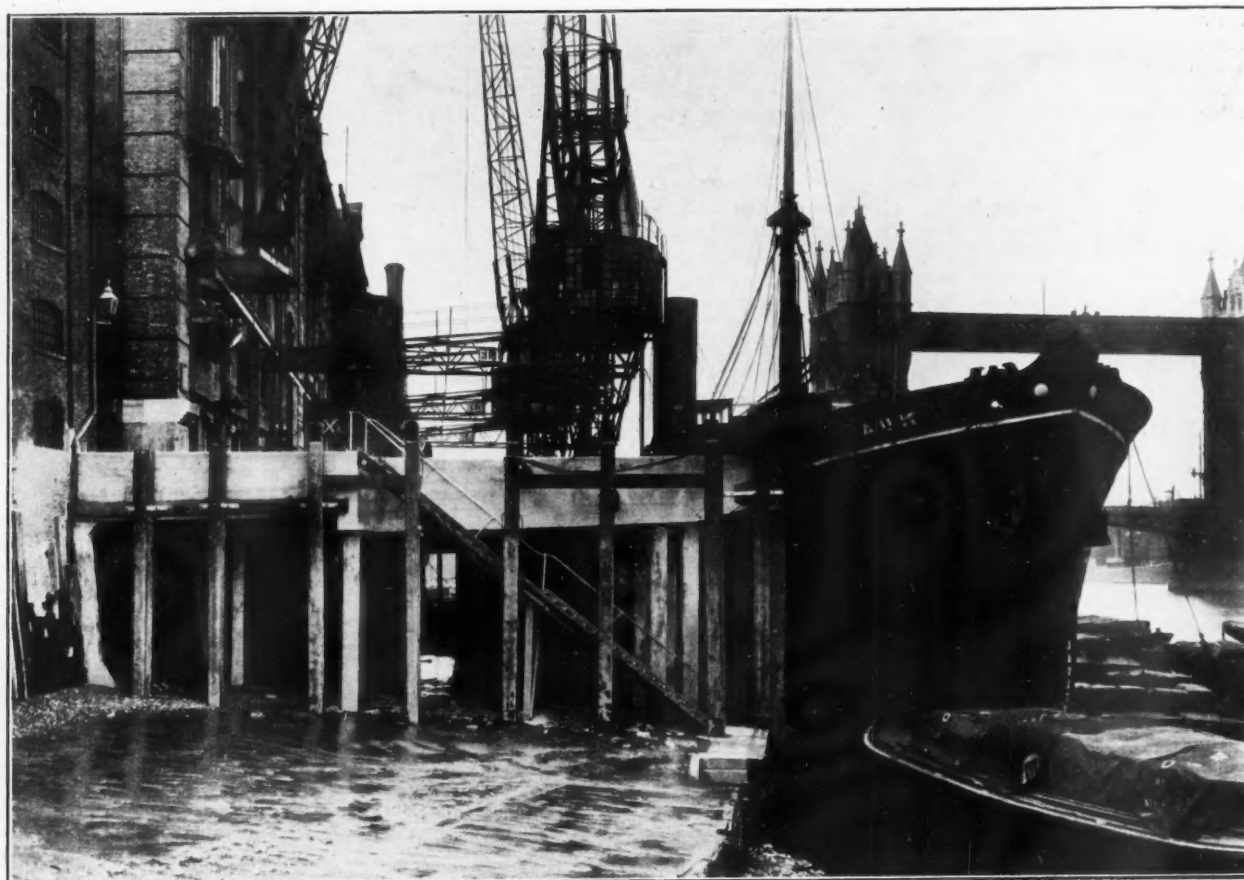
Luff Gear.—"Muskier-Davison" type as illustrated in "Dock and Harbour Authority" of September, 1924. Self re-setting limit switches at each end of stroke.

Travel Gear.—Hand operated by four men.

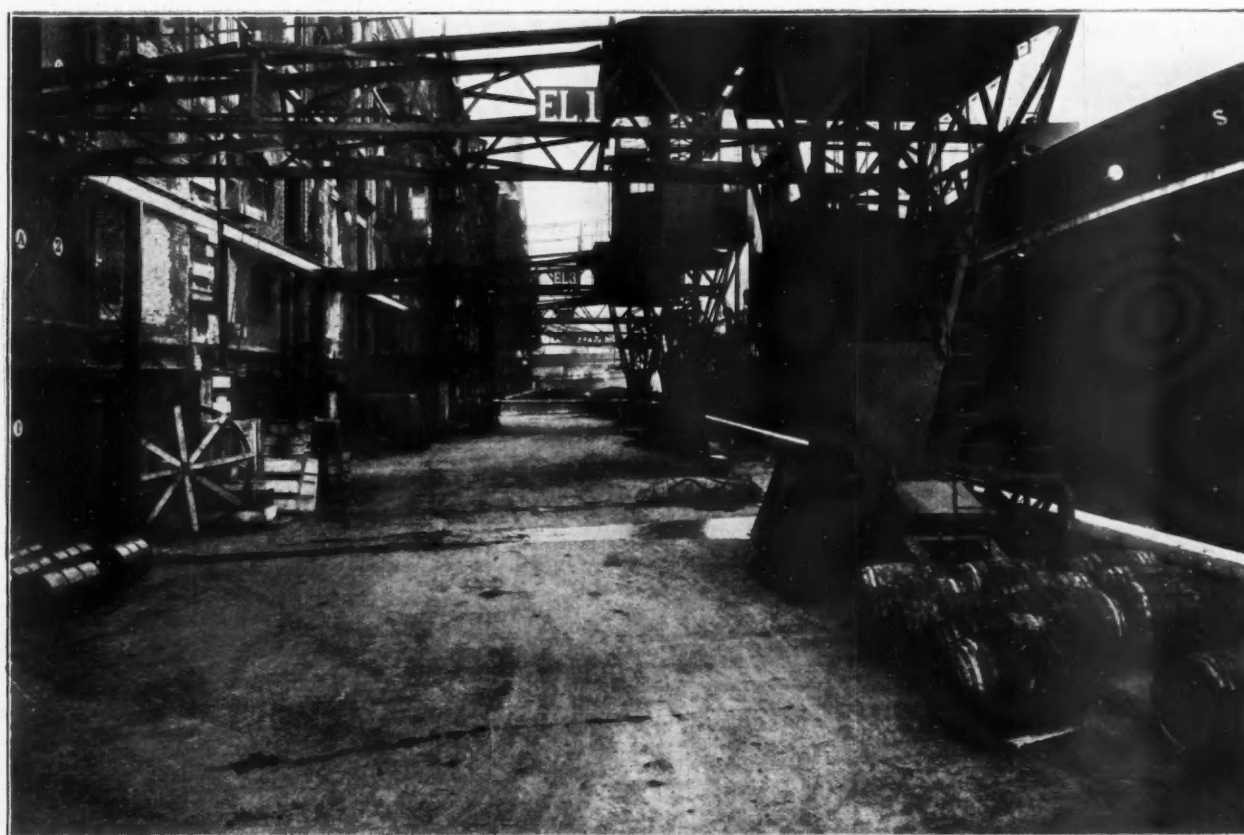
Gantry.—Runs on four cast steel wheels at Quay level and two wheels at the top sill. The horizontal girders of gantry are specially designed with an open hatchway through which cargo can pass about 11-ft. by 9-ft.

Design.—Cranes are designed on the following basis for factors of safety. Structural work—5; Gearing—6; Wire ropes—8.

Interesting Wharf Construction at Tower Bridge.



View of the New Reinforced Concrete Wharf.



View showing the Roadway on the Wharf.

Liverpool Dock Engineer's Report.

MR. T. L. NORFOLK, Engineer-in-Chief of Mersey Docks and Harbour Board, in his annual report on the progress of dock works on both sides of the River Mersey, states that the structural work in connection with the new impounding station for northern system of docks and the installation of the pumping machinery by the contractors have been completed. Certain adjustments in the pump motors have been found necessary.

Steel Jetties, Brunswick Dock River Entrances.—No work has been carried out in connection with these jetties during the year, pending observations. The work of extending the sluice pipe on the south side of the entrances has been completed and experimental sluicing is in hand.

Princes Dock Improvements.—These improvements have been completed. Six electric transporter cranes of 12 to 5 tons lifting capacity have been installed by the berthholders, three on the reconstructed shed at the north end of the west quay and three on the old shed at the south end of that quay. The necessary alterations to the shed structures were carried out by the Board at the cost of the berthholders. Cabling, etc., for the supply of electric light and power has been laid into the sheds in the west side of the dock at the cost of the berthholders.

Langton Dock and Graving Docks.—The north shed is being modernised by replacing the present four 30-cwt. hydraulic roof cranes by four 30-cwt. electric roof cranes, and by providing continuous sliding doors on the quay side of the shed. An order for the cranes has been placed with contractors. The Board have authorised the electrification of the graving docks pumping installation, and an order has been placed with contractors for the necessary machinery.

Brookbank Branch Dock.—A roof has been provided over the roadway at the west end of the north side of the dock, and a junction has been laid between the main dock line of railway and the line of rails inside the shed at the east end of the north side of the dock.

Huskisson Dock.—Rail facilities are being provided at the shed at the north end of the west side of the dock; also seven additional jiggers. Both works are approaching completion.

Sandon Dock.—A fire broke out on the steamer "Oklahoma" while berthed at the south quay of the dock. Several serious explosions occurred on the ship, damaging the hull and causing her to sink. Considerable damage was done to the shed and to three hydraulic roof cranes, etc., and some damage to the paintwork, etc., of neighbouring sheds. Attempts to raise the vessel were unsuccessful, and it was ultimately considered necessary to fix a caisson at the entrance and dry out the dock while the vessel was repaired to a sufficient extent to enable her to be refloated. The dock remained dry for nearly three months. The reconditioning of the shed is approaching completion. The Board have decided to equip the shed with five electric roof cranes and discard the three hydraulic roof cranes which were seriously damaged by the fire. The two remaining hydraulic roof cranes will be reconditioned. This was the first shed of the reinforced concrete type constructed on the dock estate, and as there was some uncertainty as to the nature and extent of the damage done to its stability by the fire and the explosions it was decided to test the floors under loads of 30 cwts. per square yard for the first floor and 20 cwts. per square yard for the second floor. This was done by means of specially constructed portable canvas tanks, which were filled with water to a depth sufficient to give the necessary loading on the various spans. In this way four and sometimes six spans were tested daily, the total number of spans so tested on both floors being 88. The tests proved satisfactory, but in view of the age and general condition of the shed it was considered advisable to reduce the permissible working loads from 25 to 16 cwts. on the first and second floors respectively to 20 and 14 cwts.

Collingwood Dock.—The shed at the south side of the dock is being enclosed by boarding up certain roadside bays and fitting sliding doors, etc., and a bulkhead is being provided between the two berths comprised in the shed. The work is approaching completion.

West Waterloo Dock.—Alterations are being carried out to the shed at the east side of the dock, including the laying of a cartway of impervious paving through the shed and the provision of three enlarged doorways on the dock side.

Prince's Dock, etc.—A new 30-ton weighbridge, with office, has been provided at the north end of the east shed, Prince's Half-tide Dock, to take the place of the old machine removed from the north end of the east side of Prince's Dock, in connection with the Prince's Dock improvements. The Prince's Graving Dock (which has been out of commission during the progress of the Prince's Dock improvements) has been reconditioned. The gates have been repaired, the sill reconstructed and the walls pointed and grouted up where necessary. Similar work has been carried out at the south river entrance to the Prince's Half-tide Dock, and the entrance which has been closed since August, 1913, has been brought into commission again.

Canning Dock.—A new 45-ton weighing machine has been ordered to be provided at the south-east corner of the dock and the existing machine moved to a position near the site of the new machine, so that the new office, which is being provided, may serve both machines.

Harrington Dock.—Additional electric mains have been laid in connection with the supply of electrical energy for the berthholders at the west side of the Toxteth and Harrington Docks.

General.—Special provision (consisting of the supply of box hoppers, bulkheads, shutters, etc.) was made during the year for the emergency storage of grain at the following sheds:—West side, Canada Dock, Canada Tongue, West side, Brunswick 80-ft. Lock; also at the following warehouses:—Wapping Dock (quay and first floors), Stanley Tobacco (portion of quay floor), Albert Dock, Stanley Dock, North (quay floor).

Work on Birkenhead Side.

The following details are given in respect of above docks:

New Single Storey Shed, etc., North Side, West Float.—The Board has authorised the provision of four 5-ton portable electric cranes on the quay at the shed, similar to those already provided at the adjoining shed.

New Rolling Lift Bridge, Duke Street.—The foundations for the bridge were commenced on August 6th, 1929, and have been completed. One track girder has been placed in position and set. The whole of the steelwork is fabricated and has been erected at the contractor's works. A considerable quantity has been delivered on the site, and the balance is being sent forward as required. The contractor's crane for the erection of the bridge has been placed in position. Considerable difficulty was experienced with the foundations for the eastern track girder. This caused a certain amount of delay to the work before it was overcome in an effective manner.

Coal Conveying Plant.—The Board have authorised the provision of a new coal conveying plant, together with the necessary railway connections, etc., at the south side of the West Float. The new appliance will take the place of the movable hydraulic hoist and No. 1 fixed hydraulic hoist. An order for the conveyor has been placed with contractors, and the bulk of the constructional work has been fabricated at the contractors' works. The operating machinery is also well advanced.

Alfred Dock.—Fendering has been provided on the river wall at the south side of the 80-ft. river entrance extending for a distance of about 150-ft. round the outer knuckle. Two semi-detached official residences for dock masters are being erected on the river wall at the north side of the entrances. The work is well advanced.

Conservancy.

Taylor's Bank Revetment.—No work has been done on this revetment during the year. In consequence of the settlement of the revetment the Board have recently decided to raise it to its original height of 5-ft. above bay datum.

Crosby Training Banks.—Burbo Training Bank has been brought up to the finished level of 5-ft. above bay datum for a length of 22,200-ft., i.e., the full length authorised. The Board have decided to raise the bank to a height of 10-ft. above bay datum. The work will be put in hand when the necessary Government consents have been obtained.

East Crosby Training Bank.—First load dumped July 2nd, 1929; total for year, 506,888 tons of stone. The bank has been completed to its finished height of 10-ft. above bay datum for a length of 2,000-ft. at the northern end, and a further length of 9,060-ft. has been completed to a height of 5-ft. above bay datum.

Hoppers, etc.—The doors of Nos. 18 and 20 steam hopper barges have been doubled and recessed within the hopper spaces to make them suitable for dumping stone in shallow water, and a similar alteration to No. 17 steam hopper barge is approaching completion.

Dredging.—The sand pump dredgers "Leviathan," "Coronation," "Burbo" and "G. B. Crow" have removed the following quantities of sand from the Bar and shoals in the Queen's and Crosby Channels during the year:—

	Bar Tons	Queen's Channel Tons	Crosby Channel Tons	Total Tons
Leviathan ...	1,508,800	1,625,200	5,064,000	8,198,000
Coronation ...	284,830	1,097,460	553,700	1,935,990
Burbo ...	237,580	2,201,150	1,029,070	3,467,800
G. B. Crow ...	310,950	836,200	49,400	1,196,550
Total ...	2,342,160	5,760,010	6,696,170	14,798,340

The quantity of sand removed from the Bar since the commencement of dredging there in 1890 is 103,094,450 tons, and from the shoals in the Queen's and Crosby Channels 342,314,030 tons, making a total of 445,408,480 tons. The sand pump dredgers have worked part of their time at the Brunswick river entrances, Herculaneum river entrances, South Dingle Jetty, and at the entrance to Garston Channel. The total quantity of sand so removed during the year was 3,539,775 tons,

The Port of New York.

Latest Data issued by the Bureau of Commerce.

Value of Foreign Commerce at the Port of New York.

FOREIGN trade, including both imports and exports, at the Port of New York during October, 1930, gained slightly over September, but was far below that of October, 1929.

EXPORTS AND IMPORTS.				
	1930 (Dollars)	1929 (Dollars)	Net Change Amount (Dollars)	Per Cent.
October ...	214,464,000	363,913,000	-149,449,000	-41
September ...	202,827,000	325,692,000	-122,865,000	-38
EXPORTS.				
October ...	88,808,000	155,168,000	-66,360,000	-43
September ...	92,330,000	149,446,000	-57,116,000	-38
IMPORTS.				
October ...	125,656,000	208,745,000	-83,089,000	-40
September ...	110,497,000	176,246,000	-65,749,000	-37

Since 95 per cent. of the export trade in the Port of New York consists of manufactures and semi-manufactures it is particularly susceptible to world economic and political conditions. When American manufactures are finding a large sale abroad, the trade at the Port of New York gains even more rapidly than that of the country as a whole. When American manufactures find difficulty in retaining their export markets, the trade of the Port of New York falls accordingly.

The importance of the shipping, warehousing, banking and distributing services of the Port of New York to manufacturers all over the country has been again emphasized in an address recently delivered by G. B. Roorbach, Professor of Foreign Trade, Harvard University, before the Associated Industries of Massachusetts. Referring to The Survey of New England Foreign Trade recently made by the Department of Commerce, Professor Roorbach states that a preliminary compilation shows 65 per cent. of the total exports of New England manufacturers to have been sent through the Port of New York in the year 1928. Explaining this preference for the Port of New York, Professor Roorbach says:—

"New England products are in large measure quality manufactured goods and specialties of high value. They inevitably seek the large marketing and distributing centre where merchandising, warehousing and banking facilities combine to favour their marketing, and where frequent and rapid transportation services assure quick and certain deliveries. This is a principle of trade the world around—the concentration of marketing in favoured centres. Such services New York can furnish in abundance. To New York come in steady stream the ships of the world bringing cargo and sure to find cargo, both bulk and high-class merchandise. Buyers and sellers, ship operators and forwarders, bankers and brokers—all the agencies of foreign commerce from all the world are here centred to facilitate trade, making New York the greatest foreign trade mart of the world. To such a market and shipping centre the quality manufactured goods characteristic of New England are attracted as steel to a magnet."

This tribute follows close on the heels of a statement published by the Chicago Association of Commerce to the effect that \$1,100,000,000 worth of merchandise from that section clears through New York annually. About a year ago the Philadelphia Chamber of Commerce announced that 2,000,000 tons of foreign trade freight in Philadelphia zone is regularly shipped through the Port of New York each year.

Grain Exports.

Total exports of grain, including Canadian grain in bond, as well as domestic, at the Port of New York, showed increases in September and October, 1930, over the corresponding months of 1929. This is the first time since the slump began in September, 1929, that increases have been registered.

The gain in exports is confined entirely to Canadian grain, the domestic exports continuing below last year.

Through special arrangements with the United States Department of Commerce grain figures in the future will cover the previous month instead of being delayed for thirty to sixty days. The record of grain shipments for the last three months, August, September and October, are incorporated in this report, bringing the figures strictly up to date.

Through the Port of New York—

		1930 (Bushels)	1929 (Bushels)	Net Change Amount (Bushels)	Per Cent.
OCTOBER					
Domestic and Canadian Grain		4,871,000	3,892,000	979,000	25.2
Domestic Grain	...	39,000	415,000	-376,000	-90.6
Canadian Grain	...	4,832,000	3,477,000	1,355,000	39.0
SEPTEMBER					
Domestic and Canadian Grain		5,697,000	3,284,000	2,413,000	73.5
Domestic Grain	...	83,000	204,000	-121,000	-59.3
Canadian Grain	...	5,614,000	3,080,000	2,534,000	82.3
AUGUST					
Domestic and Canadian Grain		5,920,000	6,155,000	-235,000	-3.8
Domestic Grain	...	197,000	286,000	-89,000	-31.1
Canadian Grain	...	5,723,000	5,869,000	-146,000	-2.5

Commerce at Port Newark.

Although the volume of lumber delivered at Port Newark section of the Port of New York by vessel during October, 1930, was less than for the same period last year, there has been a steady improvement during the last few months. Receipts during October were 15,721,000 board feet as against 23,716,000 board feet a year ago, a decline of 34 per cent.

Receipts of cargo other than lumber during the month again showed an increase over the same period last year, the volume being 9,471 tons compared with 5,919 tons a year ago, or an increase of 60 per cent.

All of the above material was delivered in 34 steamers, lighters and barges.

Appropriation for Harbour Improvements.

Under date of November 13th, 1930, the Chairman of the Port of New York Authority addressed a letter to the Secretary of War, and to the Congressional Representatives from New York and New Jersey, urging prompt action in appropriating funds for the initiation of waterways projects authorized in the 1930 Rivers and Harbours Bill to aid in relieving the unemployment situation. The letter also urged the Secretary of War to allot from such funds a sufficient amount to take care of the \$4,818,000 worth of channel improvements authorized for the Port of New York, mentioning that among the authorized projects urgently needed are: the widening of the 40-ft. channel in the Hudson River from the Battery to 20th Street, which channel carries approximately 110,000,000 passengers and 35,000,000 tons of cargo per annum; the extension of the Anchorage Grounds Channel in upper New York Bay to prevent the recurrence of such a tragedy as the sinking of the United States dredge "Navesink" with a loss of life of eighteen members of the crew; the widening of the Bay Ridge Channel off the South Brooklyn piers at which the steamships "Bremen" and "Europa" dock; the widening of the mouth of Newtown Creek, which handles nearly 6,000,000 tons of freight per annum, and the improvements to the Passaic River, Raritan Bay, and Raritan River Channels. All these projects are of such importance to general navigation that the Corps of Engineers have recommended immediate expenditure of Federal funds with no requirement of local co-operation.

The sum of \$3,115,500 was mentioned in the December, 1930 issue of this journal, as the sum authorised for channels in the Port of New York in the 1930 Rivers and Harbours Bill. The figure was correct for the items in the original bill as it left the House of Representatives, but an additional \$1,702,500 for New York Harbour was added in the Senate. Other items added to the Bill in the Senate so increased the total that the Port of New York, which handles 80 per cent. of the passenger traffic and 42 per cent. of the trade of the country, still receives only 3 or 4 per cent. of the total Rivers and Harbours appropriation.

The total amount of channel improvement work by the Federal Government in the Port of New York, up to June 30th, 1929, also mentioned in the December issue, should read \$62,384,678 if all projects are included. The annual cost per ton, figuring interest at 4 per cent. and maintenance for the 1929 fiscal year, still remains 2.51 cents per ton of commerce handled, the lowest figure of any of the principal ports in the Atlantic and Gulf seaboard.

The Port of New York—continued.

Overseas Passenger Traffic via Port of New York.

Despite depression the total overseas passenger movement through the Port of New York for the month of September, 1930, exceeded that of last year by 10,520. Inbound immigration fell off slightly, but more United States citizens embarked or disembarked than last year. In the homeward-bound rush of the latter, women outnumbered men 40,692 to 30,329.

	September 1930	September 1929
INBOUND.		
Aliens, Immigrant	10,818	11,432
" Non-Immigrant	22,250	21,829
United States Citizens	71,021	69,409
Total	104,089	105,670
OUTBOUND.		
Aliens, Emigrant	3,471	3,569
" Non-Emigrant	18,766	15,387
United States Citizens	47,996	39,176
	70,233	58,132
Inbound and Outbound Total	174,322	163,802
Total—First 9 months	900,503	872,227

Passenger Accommodations to Northern Europe out of New York Harbour.

A recent compilation by the Hamburger Fremdenblatt of the passenger accommodations available during 1929 between North Europe and New York shows a total capacity of 14 principal lines of 2,056,186 passengers per annum. This is based on the official passenger capacity of the individual vessels multiplied by the number of round trips per annum. This capacity is distributed by classes as follows:—First class, 375,634; second class 451,908; third class, 1,228,644; making a total of 2,056,186.

The total accommodations year round appear to give a very comfortable surplus over the actual volume of travel which was reported by the Secretary of the Trans-Atlantic Conference for the calendar year at 781,439. Much of this travel, however, is concentrated in the summer months, so that the larger surpluses are during the winter. During the coming winter passenger steamship sailings are likely to be curtailed more than usual by reason of the agreements recently announced between the Hamburg-American and North German Lloyd Lines, and between the six most important British Lines. Under the British plan, for example, there will be five sailings each week during the winter in the New York service instead of eight as in the summer months.

New York the Port of Pleasure Cruises.

Many of the leading Trans-Atlantic Lines find a profitable use for their finest ships during the winter in pleasure cruises out of the Port of New York. During the coming winter sixty-five or more of these cruises have already been scheduled, 30 to the West Indies, 17 to the Mediterranean, 1 to South America, 3 to Norway and the North Capes, and 5 around-the-world. It is estimated that approximately 24,000 people will embark on these cruises, paying fares amounting to at least \$8,000,000.

Passenger Traffic via Domestic Steamship Routes.

More than half a million people travelled between the Port of New York and other United States Ports during the third quarter of this year, July to September inclusive. This traffic, which covers the Atlantic, Gulf, and Inter-Coastal routes, also the Long Island Sound and Hudson River Lines, reached a total of 519,046 passengers during that period.

Since the first of the year 924,507 passengers have been carried in or out of this port via the domestic steamship routes. These figures do not include one-day round-trip excursionists carried by the Sound and River Lines during the summer months.

Steamship Sailings.

Regular foreign sailings from the Port of New York for the month of October, 1930, are about 8 per cent. under the same month last year. Most of this decline took place in the South American trades, both east and west coasts being affected. Sailings over other foreign routes are holding up well, particularly in view of the extreme depression in the freight market. More decreases in sailings this winter may be expected because of the agreements between British Transatlantic Lines to restrict competitive sailings over the same routes.

In the domestic trades the direct coastal and intercoastal sailings are about the same as a year ago, although the gain in coastal tankers sailing from this port steadily continues.

The peak day of the month was Saturday, October 4th, with a total of 86 foreign and domestic sailings. Of the 47 foreign sailings 9 were to the United Kingdom, 10 to North European points, and 14 to Mexican-Caribbean ports. Included in the 39 domestic sailings were 8 to South Atlantic and Gulf ports, 1 to the Pacific Coast, 2 tankers, and 2 coal carriers.

Vessel Movements in Foreign Trade.

The number of vessels entered and cleared in foreign trade at the Port of New York during October amounted to 530 and 547 respectively, being 3 and 8 per cent. less than last year. The net tonnage of vessels entered was 3 per cent. less than the same period last year, while the net tonnage of clearances increased 1 per cent.

	1930		OCTOBER 1929	
	Number of Vessels	Vessel Tonnage	Number of Vessels	Vessel Tonnage
Entrances	530	2,546,628	574	2,630,266
Clearances	547	2,635,672	566	2,602,371

New Ship Construction.

The laying of the keel of the "Excambion" indicates the early completion of the Export Steamship Corporation's \$9,200,000 building programme. This makes the fourth vessel to be completed within the year by this Company.

Inter-Coastal Traffic.

Charles Nelson Company have arranged for the use of a portion of Pier 39, Brooklyn, for the handling of westbound general cargo.

The largest silk cargo ever carried in an intercoastal vessel arrived at New York on October 20th, when the Panama Pacific liner "Virginia" arrived from the Pacific Coast with 6,000 bales of silk, valued at approximately \$5,000,000.

New York State Barge Canal.

In accordance with the ruling of the underwriters, the season for grain shipments eastward via Barge Canal closed November 15th, and for iron and steel articles on November 17th. The waterway, however, will be kept open by the State as long as boats are moving.

Tonnage handled over the Barge Canal up to November 2nd aggregated 3,315,919 tons, representing a gain of 672,523 tons over the same period last year. An increase is shown in all divisions of the Canal system. The gain on the Erie Division amounted to 564,044 tons.

Pennsylvania Railroad Warehouse Terminal.

The rail to keel warehouse terminal of the Pennsylvania Railroad at Jersey City is rapidly approaching completion, and is expected to be ready for occupancy in January, 1931. The complete unit will consist of an eight-storey building with a frontage of 970-ft. on the Hudson River and three piers, two of which are about finished, and one which is to be built at some future time.

The building will have a storage capacity of 27,000,000 cubic feet, 4,000,000 of which will be for cold storage purposes.

The piers will be 854 and 905-ft. long and 125 and 160-ft. wide. Ramps will provide access for vehicles to the upper deck.

Quick Turn-round after Fog at Port of London.

Owing to the fog the number and tonnage of ships in and out of the Port of London during the week ended December 5th was smaller than usual. During the period in question 839 vessels, representing 798,974 net register tons, used the Port of London. 443 vessels (637,509 net register tons) were to and from Colonial and Foreign Ports, and 396 (161,465 net register tons) were engaged in coastwise traffic.

Intensive activity at the Port of London Docks followed the delay to shipping caused by the fog recently. On the afternoon tide of Sunday, the 7th December, no less than 25 ships, representing over 175,000 gross register tons, were locked in or out of the entrances of the Royal Victoria and Albert and King George V. Docks.

This was a much better performance than the previous record in October last, when 16 ships (132,000 gross register tons) were handled in a similar period and reflects great credit on the efficiency of the Dockmaster and his staff.

Congestion of Traffic at Ports.*†

By Walter E. Tapper (Associate Member of the Institute of Transport).

CONGESTION is one of the worst problems which confronts port authorities, shipowners, stevedores and all interested in and responsible for the movement of traffic at ports. Nothing injures the prestige and reputation of a port more than its inability to deal efficiently and smoothly with traffic during periods of exceptional activity when the prompt dispatch both of ships and goods is paramount.

It is true that since the war, firstly owing to the unfortunate falling off in sea-borne trade, and secondly to the improved and additional accommodation and facilities which have been provided at most of the leading ports of the United Kingdom, the troubles in respect of congestion have not arisen so frequently or so acutely as occurred in pre-war days.

Practically all the ports are now adequately equipped to deal expeditiously with the normal flow of trade, and most ports could satisfactorily handle—and would gladly welcome—a volume of traffic largely in excess of the quantity which they are getting at the present time. In spite, however, of this state of affairs, there are times when a check occurs in the dispatch of ships and traffic at a port. Delays arise causing an interference with the regular movement of traffic, upsetting the plans and arrangements prepared beforehand, and taxing its resources to the utmost.

Such delays during recent years may, for the most part, be described as of a sectional character, that is to say one or more branches of the trade of the port may adversely be affected whilst the rest of its activities pursues a normal and uninterrupted course.

The effect of sectional congestion necessarily depends on the importance of the traffics concerned. In the case of a port whose principal trade is the export of coal, the ramifications of a state of congestion—especially if prolonged—would obviously be felt far afield, whilst in other cases the effects of congestion may be quite localised.

Of the causes which give rise to congestion and delay in the movement of traffic at ports, the first and foremost are the climatic conditions; high winds, gales and fog still cause ships to be delayed on their voyages, with a consequent dislocation of time tables and arrangements, whilst the following ships may wholly or partially escape bad weather. The consequence is that the arrivals instead of having a suitable interval between them, as anticipated, come along almost simultaneously or the second ship comes along before the first has completed her discharge or loading. This is a frequent cause of delay to the second ship, especially at a port where the berths suitable for particular classes of cargo are limited.

On arrival at a port the work on a ship may also suffer unexpected delay owing to weather conditions. Bad weather, including snow, floods and prolonged spells of fog, may hinder inland transport and delay the movement of railway rolling stock and, to some extent, barges and road vehicles, and, in addition, the movement of inland traffic from and to the docks. During the past winter, for example, serious floods in South Wales interfered with the movement of railway wagons. The effect was soon felt at a number of ports on both sides of the Bristol Channel where, in spite of special measures taken by the railway companies, some difficulties arose in providing a sufficient supply of trucks for the forwarding of dock traffic.

The ideal state of affairs is the steady and regular arrival of vessels at ports, but as is the case with so many ideals, this is seldom realised, and the experience at most ports—particularly those where cargoes brought in "tramp" vessels form a large proportion of the trade—is that the volume of traffic week by week or month by month fluctuates over a very wide range, a slump period being followed by a spell of exceptional activity or *vice versa*. It is sometimes difficult in these circumstances to prevent some delays during the unusually busy periods unless elaborate and almost extravagant accommodation is provided and plenty of labour is always available.

A reference must be made to the labour question, as an adequate supply of suitable labour has an important bearing on the problem of congestion. The average casual dock worker—and it is the casual workers who constitute the major part of the dock labour—suffers on the whole from under-employment. The system of registration of the dock workers

at the principal ports has tended to reduce to more reasonable limits than formerly the number of men to whom work at the docks affords an opportunity of earning a steady livelihood, and also to provide a type of man adept at dock work. There is, however, a large number of men who have to depend more or less upon intermittent employment, but although in normal times the supply of labour in the aggregate at ports is ample—not to say excessive—there are times when work is held up or perhaps slowed down owing to the lack of labour, especially when some branch of trade requiring perhaps a somewhat specialised class of labourer is experiencing a busy spell. There is a tendency amongst dock workers to attach themselves to some branch of trade in which they specialise, and they look to that particular trade to provide them solely with employment, so that whilst the average dock worker is adaptable within certain limits, there is a disposition amongst many of the men to get in a groove, and they are reluctant to seek work outside their accustomed jobs. Besides, many men suitable for some particular job are, owing to physique, lack of experience, unadaptability or other reasons, unsuitable for another job requiring a different type of man with special skill and experience. The men have developed the habit of sectioning their labour. Some rely upon the general cargo trade for their employment, some timber or pitwood, some coal shipping, others bulk cargoes such as iron ore or grain, and they are not always readily or successfully transferred from one class of work to another. It is found, therefore, that a particular trade at a port is, at times, short of suitable labour and some delay and congestion—localised, it is true—may ensue.

A frequent and often exasperating cause of congestion is the delay in removing goods from the quays and transit sheds and results in hampering the handling of further cargoes. This delay may be due to a variety of causes, avoidable and otherwise. It has already been stated that weather conditions interfere from time to time with the movement of traffic to and from the inland destinations, and apart from the weather conditions, it is not unusual to experience a shortage of railway trucks at a port due sometimes to a heavy demand generally and not infrequently to no assignable or definite cause. A shortage of railway trucks, especially if it continues for any length of time, has a disastrous effect upon the working of dock traffic. Road hauliers may also fail to remove goods as promptly as expected or desired. These circumstances, whilst perhaps not always bringing about a state of congestion at the docks, tend to disturb the convenient and smooth working of traffic.

Another difficulty is in the case of traffic coming in large quantities and for which, owing to market or other conditions, there is but a small demand on arrival, or it may be that there is a glut of a particular commodity. Green fruit, such as oranges, may be cited as an example. Before one cargo has been absorbed by the market, another arrives. The importers of the second cargo, naturally desirous of avoiding expense, do not display any hurry to remove the goods from the transit sheds if they can see a prospect of disposing of their goods direct from the docks. In the meantime the goods are occupying valuable space at the dockside needed for other incoming cargoes.

It sometimes happens that importers, owing to the state of the overseas and home markets, require prolonged storage of a commodity in large quantities at the docks which puts an abnormal strain upon the storage resources. An example which illustrates this position was the heavy importation of grain into Liverpool in the Autumn of 1929. During the early part of September, 1929, the stocks of grain in the granaries at the docks at Liverpool were about 50,000 tons, but so rapidly did the importations arrive that by the end of October the stocks had risen to the unusually high figure of 250,000 tons and remained at this figure for several months ("Bromhall's Corn Trade News," September and October, 1929). Improvised storage room had to be arranged and some steamers were kept under demurrage until room could be found for their cargoes. The irony of the situation was that other ports, if not exactly languishing for traffic, found their imports below normal and with empty space in their granaries and warehouses.

The great offender who contributes towards a state of congestion or, at any rate, who is the cause of much anxiety to the port authorities, shipowners, and stevedores when accommodation is at premium, is the importer who habitually

* Thesis on the special subject prescribed on behalf of the Dock and Harbour Authorities Association, and awarded the Water Transport Premium, 1929-30, donated by the Association. The full text of the prescribed subject was "Causes of and precautions against congestion at ports, with special reference to the best methods of preventing congestion of traffic at ports."

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Congestion of Traffic at Ports—continued.

neglects to remove his goods expeditiously from the quays and sheds after landing, and who studies merely his own convenience. If he is in no hurry for his goods, or if their prompt removal might involve some exertion on his part, the goods are allowed to stay where landed until he is pleased to order their clearance. This type of trader is well known to the railway companies. By habit he keeps his trucks underload for the maximum "free" period, and with him his own selfish outlook is always paramount. This delinquent generally shows much indignation if faced with an account for rent or demurrage for failure to clear his goods within the stipulated period. No transport undertaking can afford to provide accommodation to satisfy the unreasonable requirements of this class of trader. Not only does his traffic occupy valuable quay and shed space, but his failure to remove them not infrequently causes other traders' goods to be blocked in and their removal thereby hindered. It is not unusual to find him in his most dilatory mood when the demand for space is greatest.

It is sometimes difficult, if not impossible, to avoid delays to cargoes which require separate or special berths and equipment for their discharge or loading when several vessels arrive simultaneously or close together. An example is oil carried in bulk. The vessels engaged in this trade must be provided with special berths connected by pipe lines to the storage tanks and, on account of its dangerous character, this trade must be segregated from the other activities of the port and special precautions enforced. Many port authorities do not permit vessels to discharge oil in bulk within their enclosed docks but provide special jetties outside. The importation of oil has increased very rapidly since the war and, although a large number of ports are now catering for the oil trader, the berthing accommodation is necessarily limited and there are times when oil tankers are delayed awaiting their turn to discharge.

The distribution of oil in bulk from the larger ports by coasting steamers has rapidly increased during the past few years; frequently these vessels have to use the same berths as the importing vessels, so that there is a heavy demand upon the berthing accommodation for vessels engaged in the oil carrying business. Fortunately oil in bulk can be discharged and loaded very rapidly and hitherto delays to steamers have not been serious, but the probability of having to provide more extensive accommodation has to be faced by the port authorities catering for this trade.

Iron ore is another traffic which arrives in large lots and has to be discharged at special berths equipped with grab cranes. Fresh fish is a traffic which must be handled at separate quays with special accommodation; owing to its highly perishable nature, this traffic must be dealt with expeditiously on arrival and the port facilities must be adequate to deal with abnormal catches from time to time.

An import which is frequently the cause of congestion is timber. The importation of timber is seasonal although usually spread over a fairly long period during the year. A large part of the timber is stored at the docks on arrival and subsequently sent inland as required; the tedious and laborious handling operations necessary make a heavy demand upon the quay space. It may be estimated that normally not less than a month passes from first to last in the case of an ordinary cargo of timber landed on the quay before the slow processes of sorting and stacking are completed and the timber finally put away in the storage yard or sheds. It will easily be realised that at ports handling large imports of timber there is during the season a tax upon their accommodation, and delays and congestion are apt to arise.

Timber stands in quite a different category from any other class of cargo and, so far, no satisfactory mechanical appliances have become available to expedite its handling, although, where conditions are suitable, bogie railway wagons have been used with some measure of success for receiving the timber from the ship and removing it immediately to the special yards or sheds where it is unloaded, stored and stacked according to marks and sizes. The dumping of timber on the quays is thereby avoided, but this process can only be carried out where there is ample space in the storage area and plenty of railway lines. As the wagons are loaded at a far greater rate than the timber can be dealt with in the yards for storage, a very large supply of wagons is needed.

Timber from Northern Europe—the principal source of supply—can be shipped in small sized steamers that can use many of the smaller ports where the depth of water and facilities would often be very inadequate for almost any other class of import trade. The importation of timber is, therefore, spread over a far larger number of ports than any of the other foreign imports, and almost every port around the coast having the requisite depth of water and a reasonable area of quay space usually receives a few cargoes during the season. The facilities at these smaller ports are often rather primitive, but the timber can be discharged on the quay by the ship's gear,

and is removed from the quay, usually by men employed directly by the importer, in a more leisurely fashion than would be permissible at the larger ports.

One hesitates to conjecture what the state of affairs would be if the importation of timber were confined to a few ports, as is the case with wool, cotton, iron ore and several other of the staple imports. In the busy timber ports it is not uncommon to have the exasperating experience that the discharge of ships is held up, although there are vacant berths, because the timber from previous arrivals is still blocking the quays.

Timber is often stowed on board in a most haphazard fashion regardless of marks and sizes, and this adds to the acknowledged difficulties in handling timber at ports. The plea has been put forward for a more methodical stowage of timber cargoes at the loading ports so as to facilitate labourage processes on this side.* Some progress has been made by arranging at times to stow separately parcels intended to be conveyed upon arrival direct to an inland destination. This arrangement enables that part of the cargo to be worked direct to railway wagons without the necessity of putting it upon the quays, and a saving of cost and space at the docks to be effected.

Wool and cotton are traffics which are stored in large quantities at the docks. Special warehouses have been constructed at the ports where these goods are imported, and the goods have to be stored in a special way according to marks, and to conform to the requirements of these trades. Fortunately bales of wool and cotton can be handled more easily and expeditiously than pieces of timber, but it is always essential that the bales be not allowed to block the transit sheds and interfere with incoming cargoes.

Dutiable goods, such as wines, spirits and dried fruits, have on arrival to undergo the process required by the Customs authorities for test and the ascertainment of volume. These processes, which are carried out in the transit sheds, take a long time, and the goods have to be spread out in the sheds to enable the Customs officials to carry out their work. These traffics, especially when they arrive in large consignments, make a heavy demand on transit shed space.

Leaf tobacco is dutiable traffic which, on the other hand, is usually removed direct from the ship under the supervision of the Customs officers to the warehouses where the tobacco is stored for maturing, and the processes required by the Customs authorities are carried out simultaneously with the requirements of the trade, so that transit sheds are not unduly encumbered with this traffic.

In the case of other dutiable goods such as bags of sugar, coffee, or cocoa, where each bag usually contains a standard weight, the customs formalities are more simple and can usually be carried out without delaying the movement of the goods, but often various classes of dutiable goods remain in the transit shed for an inordinate length of time waiting for the completion of the customs formalities due, in some cases, to the absence of the necessary documents, dilatoriness on the part of the importer, or other extraneous causes. The ports which deal with dutiable goods of a miscellaneous character need ample transit shed room.

Fresh fruit and vegetables are seasonal traffics which it is important should be discharged and dispatched with all possible speed. The season for these commodities is usually a short one and the volume of traffic and constant arrivals often impose a heavy tax on the organisation of the ports through which they pass.

With respect to export cargo, the shipment of coal comes first in the consideration of the problems of congestion, as the volume of coal shipped through ports exceeds by many times all other exports. A study of the many problems relating to the expeditious and uninterrupted shipment of coal during busy periods or periods of exceptional stress would require a separate paper. Suffice it to say that the bringing of coal from the collieries to the ships and providing loading berths—so that each ship can be loaded exactly as required—demand extensive accommodation and specialised facilities as well as the most skilful organisation.

Those possessing only a cursory knowledge of coal ports must wonder at the many miles of standing sidings required for loaded wagons awaiting shipment and for the return of empty wagons to the collieries. It is easy to imagine the difficulties should a state of congestion occur. Delays to ships coming to load owing to bad weather or other causes, abnormal volume of traffic and any interference with the movement of coal between the collieries and the docks, are among the principal causes of congestion and difficulties to be contended with in the coal trade.

(To be continued.)

* Sir Joseph Broodbank, "The Journal of The Institute of Transport," Volume VI., page 521.

Italian Harbour Affairs.

ACCORDING to the latest reports shipping has shown an increase at the main Italian ports during the last part of the year, the exceptions being Trieste and a few other small ports where influences, which are not particularly connected with the Italian economic situation have proved an important influence. According to the statistics which have just been published, shipping at Trieste during the month of October, 1930, has shown the following development:—

	1930	(Centals)	1929
ARRIVALS.			
By rail	1,070,757		1,180,360
By sea	1,581,898		1,588,806
Total	2,652,655		2,769,166
CLEARANCES.			
By rail	968,619		1,097,006
By sea	697,203		644,311
Total	1,665,822		1,741,317
TOTAL.			
By rail	2,039,376		2,277,366
By sea	2,279,101		2,233,117
Total	4,318,477		4,510,483

Trade by sea during the first ten months of 1930 at Trieste reached 18,895,291 centals against 24,771,883 centals during the corresponding period of 1929, and trade by rail 17,243,641 centals against 20,948,328 centals. It will be seen that shipping has shown a larger decrease than railway traffic, but in the month of October, while shipping has shown a revival at Trieste, railway traffic was still rather dull, thus confirming that the decline in Trieste shipping is connected particularly with the situation of the hinterland.

In connection with the port of Trieste it should be noted that two further warehouses have just been opened identical to those opened last year, and which complete the facilities offered on Jetty No. 6 of the Porto Franco Duca d'Aosta. These warehouses, Nos. 61 and 63, together with Nos. 62 and 64, are to be placed at the disposal of the trade beyond the Suez Canal. According to the views of the directors of the General Bonded Stores Administration of Trieste, who are in charge of the administration of the port, it is expected that by offering adequate facilities to such trade it will be possible to increase shipping. The new warehouses measure 145.10 metres and 173.50 metres respectively in length. They comprise two storeys and are built in concrete with a long terrace over the

whole length of the building at a height of 1.10 metres from the level of the road. The warehouses will be served by inner and outer electric elevators for the transferring of goods from one floor to another, and by 10 electric cranes of 2.5 tons and 6 of 5 tons. According to the programme which has been laid down by the Trieste General Bonded Stores, Jetty No. 6 in the Porto Franco Duca d'Aosta will be fitted with 34 electric cranes of 2.5 tons and 5 tons. On both sides of these warehouses railway tracks will be laid down to connect them with the Campo Marzio Trieste Railway Station where the direct railway line from Trieste to Munich and Amsterdam commences.

The General Bonded Stores at Trieste have increased the number of small electric cars to convey goods from the warehouses to the quays and vice-versa.

According to the last reports, goods shipped from Genoa this year have shown an increase of about 100,000 tons, while the main progress, as far as goods imported are concerned, has been noticed in cotton (35,000 tons); metals (15,000 tons); wood pulp (17,500 tons); phosphates (20,000 tons); and building material (25,000 tons).

The Consorzio Autonomo del Porto di Genoa has taken into consideration the possibility of a further decrease of labour tariffs in accordance with the plan which has been worked out by Premier Mussolini to decrease the cost of living over the whole country.

On the other hand the problem of the direct line between Genoa and Milan has been taken into serious consideration by the Government, and it would appear that in the course of the next few years allowances will be made to start such construction, which will shorten the route from Milan to Genoa to about 120 kilometres. In order to facilitate communication between Switzerland and Genoa a new line should be built between Mortara and Tortona, in the immediate hinterland of Genoa, shortening the route between the sea and the lake Maggiore.

According to information from Tripoli (Lybia) the Italian Government has decided to build a large port at Zuara, and works are already in progress. Such construction includes about 1,500 metres of quayage and some warehouses. Zuara is a large exporting centre, particularly since many Italian settlers have arrived there from Tunisia.

An Italian made suction dredger has been supplied to the American concern, which is undertaking the drying of the marshes at the mouth of the Vardar in the harbour of Salonika (Greece).

Sounding Device for Ships at Sea.

For a number of years scientists and marine experts of the Marconi Company have been engaged in experimenting with sounding devices for use on board ship. Following these exhaustive experiments a new company, known as the Marconi Sounding Device Co., Ltd., has been formed, and has eventually selected the well-known Langevin Chilowsky Supersonic Process. This process it has elaborated to suit the requirements and practical economic needs of the British Mercantile Marine.

Professor Langevin himself, who is one of the best-known scientists in Europe, has consented to take a seat on the board of directors of the new company, which consists of the following:—President, Marchese Marconi; chairman and managing director, the Rt. Hon. F. G. Kellaway, P.C.; deputy managing director, Mr. F. S. Hayburn; Professor Paul Langevin, Mr. J. Beyt, Mr. J. F. O'Malley, Major H. Lefroy.

The new company owns world-wide rights for the patents of Professor Langevin and his associates, and in addition all those patents on the same subject which are the property of the Marconi Companies.

The Marconi Sounding Device takes accurate soundings directly underneath the ship on which it is installed from 2 to 350 fathoms, which are the least and greatest depths likely to be required under present conditions.

The apparatus is fully automatic, and is set in action by the pressing of a button on the ship's bridge, or wherever it is desired to instal the indicator. On the button being pressed the indicator shows at once the depth of water immediately under the ship by means of a pointer which moves over the surface of a scale and remains stationary for about ten seconds at the correct depth. This operation is repeated four times a minute until the apparatus is switched off.

The working of this device is not in any way affected by the speed at which the ship is travelling, and being automatic it requires no human skill in operation.

The actual operation consists of the emission of an elastic wave through the water which is directed vertically downwards. On reaching the sea-bed this wave is reflected back to the ship's bottom, where a suitable receiver is installed. In the Marconi installation the transmitter and receiver are identical.

The truly economic value of this apparatus can best be appreciated when it is realised that of the different kinds of casualties which conclude the existence of ships, strandings and kindred casualties, are the most prolific cause of disaster, and to such casualties are attributable 50 per cent. of the losses of steamers and motor ships.

Message from Canada to British Manufacturers and Merchants.

On his return from a three months' tour of the principal cities of Canada, Mr. A. E. Wildey, Public Relations Officer of the Port of London Authority, said that although all Canada's aspirations at the Imperial Conference had not been realised, it was very apparent from his contact with some of the leading business men of Canada that there was not the least sign of ill-will. In fact, there remains a most marked desire on the part of Canada to increase trade relations with the Old Country. The Imperial spirit was never keener and he had been urged to take back a message to Britain that Canada would welcome more British goods if our manufacturers would adapt themselves more to the special requirements of the Canadian markets. Mr. Wildey was also repeatedly requested to tell the Old Country that Canada wanted more branches of British firms and more British capital to develop her resources.

Hull and the Humber.

Navigation of the River Humber.

Progress of the New Entrance Lock at Goole.

Official Inquiry by Fisheries Committee at Hull.

THE most important development in connection with the proposed road bridge across the Humber in the vicinity of Hull to connect with the Lincolnshire side of the river has been the emendation of the original plan prepared by Sir Douglas Fox and Partners. The intimation that this had been done presumably with the object of meeting to some extent at least the objections raised by those interested primarily in the navigation of the river was conveyed in a report made to the Humber Conservancy Commissioners at their last meeting by their engineer, Mr. A. E. Butterfield. In his report the engineer stated: "It is now proposed that the bridge shall consist of thirteen approach spans, one large navigation span and two anchor spans. The approach spans have been increased in length from 250-ft. to a minimum of 330-ft., and a maximum of 368-ft. The anchor spans have been increased from 264-ft. to 398-ft. The large navigation span remains the same, but the headway underneath this span has been increased from 90-ft. to 105-ft., and this height is maintained through the anchor spans. The headway under the approach spans varies from 65-ft. at the anchor span abutments to 40-ft. on the Yorkshire side, and 35-ft. on the Lincolnshire shore. This compares with the original proposal of 65-ft. at the anchor span abutments, the headway on each shore remaining the same. The result of the above alterations is that there will now be only 15 piers or abutments in the river compared to 22 in the original proposal." Mr. Butterfield added that the objections to the original proposal as outlined in his report of September 2nd still applied to the proposal as now varied.

The Chairman (Mr. J. H. Fisher, J.P.) stated that as the Hull Corporation's Parliamentary Bill relating to the project would soon be available, he considered, therefore, that the time had arrived for the whole matter to be referred to the Parliamentary Committee (of the Board), and that the Humber Bridge (Special) Committee should be dissolved. In this the Board concurred and no discussion took place on the proposal which the Board are to vigorously oppose when it comes before Parliament. At a meeting of the Hull Chamber of Commerce and Shipping, held the previous day, however, Mr. Fisher outlined the attitude of the Board towards the project and emphasised that the Board was not entering upon opposition in any fractious spirit. As far as the bridge itself was concerned, everyone, he said, would be pleased to see it for the convenience and pleasure it would bring. The Conservancy had nothing whatever to do with the cost of it; they were, however, the statutory authority appointed to look after the river, and they felt that unless the promoters of the Bill could, through their experts, give an assurance that no alteration would be made in the channels, it was their duty to oppose it. Referring to the Conference on the scheme to be held at the offices of the Ministry of Transport in London, Mr. Fisher said he did not think the Board's decision would be altered one iota, but they felt bound to attend out of respect to the Minister who had invited them. The Lord Mayor, at the same meeting, made a strong appeal for all the different interests to co-operate, since the Corporation's Bill was promoted solely in the interests of the river and the port.

The preamble of the Bill sets out that the construction of a bridge for vehicular and pedestrian traffic across the river Humber would be of public and local advantage, and that the Minister of Transport has intimated that he will be prepared to make a grant of 75 per cent. of the approved expenditure incurred in the construction of the bridge, road and approaches. The estimates are:—Acquisition of land, £13,315; construction of works, £1,776,015. For the purposes of carrying the Act into execution Part II. of the Bill provides for the incorporation of a Board, which, until the completion of the bridge, shall consist of ten members to be appointed by the Hull Corporation, six by the Lindsey (Lincolnshire) County Council, and one each by the three remaining contributing bodies, viz., the Beverley Corporation, the Cottingham Council, and the Hessle Council jointly. On and after the completion of the bridge the constitution of the Board is to be changed to eighteen members, appointed equally by the Hull Corporation, the Lindsey County Council, and the East Riding County Council. The last named, it may be noted, has refused to come into the scheme, but after its construction will be involved in a share of the maintenance and road expenses. Compulsory power is taken to acquire lands, and Clause 30 provides that in estimating the amount of compensation or purchase money the enhancement in value of adjoining land shall be set off against the compensation or purchase price. In the part dealing with works, authority is given to collect tolls, this authority or power to cease on the 31st day of March immediately following the date upon which

the whole of the excess sum of expenses has been paid off, or on the expiration of 10 years from the completion of the bridge or of such longer period as may be allowed by the Minister. The schedule of tolls shows they range from 10s. for a hundred sheep to 1d. for a child under 14 years of age. The financial contributions towards the acquisition of land and the construction of works are fixed as follows:—The Hull Corporation, £200,000; the Lindsey County Council, £30,000; Barton Urban Council, £10,000; the Beverley Corporation, £3,000; Hessle Council, £2,000; and Cottingham Council, £1,000. Section 81 makes the East Riding County Council responsible for one-third of the expenditure on the maintenance of the bridge and administration after the completion of the bridge, the remaining two-thirds being borne by the Hull Corporation and the Lindsey County Council.

Apart from the major opposition of the Humber Conservancy Commissioners a strong attitude is being adopted in other directions, and a big fight is likely to be waged in the Committee rooms at Westminster. At the annual meeting of the Hull Chamber of Commerce and Shipping in November the President (Mr. W. Hugh Stephenson) stated that the Parliamentary Committee recognised the advantages that would accrue to the city in connection with communication across the Humber and also the very favourable financial conditions attaching to the project so far as Hull was concerned, but in their opinion great risks in regard to the navigation of the river were involved, and they were therefore opposed to the scheme. A letter was, however, interposed from the Town Clerk suggesting that before the Chamber came to a definite decision it was desirable that there should be a meeting between representatives of the Chamber and the Corporation for an exchange of views. Following this the motion to confirm the decision of the Parliamentary Committee to oppose the Bill was withdrawn, and it was decided to call a special meeting of the Chamber at a later date to further consider the matter.

Opposition is also threatened from the London and North-Eastern Railway Company for obvious reasons, and the West Riding port of Goole is greatly concerned about the future of its approaches from the sea. The Aire and Calder Navigation, which is largely interested in Goole, has sent out a memorandum asking for the support of the Leeds Corporation and others. In this it is pointed out that it is essential for the prosperity of Goole and the West Riding of Yorkshire that nothing should be done to obstruct the navigation of the River Humber or limit the burthens of the vessels which can or may trade with Goole in the future. Referring to a statement in the report of Sir Douglas Fox and Partners that "no large vessels ply on the Humber above Hull Docks and none is ever likely to do so," it is pointed out that a new entrance lock is being constructed at Goole to accommodate 4,000-ton vessels—about double the size of those now using the port.

The memorandum also states that many of the vessels now trading between Goole and Continental ports have regular "timed" services and pass up and down the river at all times of the day and night, and comments that "they would certainly be unable to continue their services if a bridge were constructed as proposed." As a dock authority the Aire and Calder Navigation, it is added, is not opposing the construction of a road bridge on the ground of competitive traffic, but on the vital principle of interference with and obstruction to navigation and to the river approach to the port.

The Leeds Chamber of Commerce have already given their support to the Goole opposition. Mr. T. F. Braine made the very interesting comment that unless the training walls (now being built) were continued from the entrance of the Ouse in the Humber right up to the bridge it would be physically impossible to keep a channel which could be relied upon. This, by the way, is part of the Conservancy scheme produced many years ago but never acted upon owing to the want of funds and other causes. Another speaker, Mr. T. Hargreaves, observed that Goole was the best port for the West Riding and said that difficulties in the Humber were bad enough now without additional complications. Captains overdue with urgent cargoes might chance a mudbank, but they were not going to chance a pier. The proposal, he added, was nearly equal to closing the port of Goole.

On the other hand it was revealed at the meeting of the Hull Corporation, when formal approval was given to the promotion of the Bill in Parliament, Alderman Richardson stated that, according to the latest information the Corporation had from their expert advisers there appeared no danger which would involve the abandonment of the project. That, put briefly, he said, was the opinion of Sir Cyril Kirkpatrick in

Hull and the Humber—continued.

the light of the investigations he had conducted up to the present. Alderman Richardson added that the Corporation and the Lindsey County Council were agreed that if it could be proved that there was grave danger to navigation or the navigable channels of the Humber the scheme must be modified; and that if no modification would remove the danger the scheme would be abandoned. The Sheriff (Alderman R. W. Wheeldon), who has been connected with shipping on the river all his life, said that he was not opposed to the Bill. Like every other member of the Council, he realised that, if a bridge could be constructed in such a way that it would not interfere with the navigable channels of the Humber, it would be a great acquisition to Hull and also to Lincolnshire. If they could get quick communication with Lincolnshire and the near Midlands, it would lead to a development of the shipping interests. He knew the dangers from a practical point of view, for his firm had vessels going up and down the river every day, one tug with a string of eight lighters in tow, so that it could be understood there would be serious obstruction to navigation if the bridge were in such a position that the tide was flowing across it at an angle of 65 degrees. If that could be obviated so that the channel could get right through, the only danger of obstruction would be in times of fog.

Meeting of Goole Chamber of Commerce.

At the meeting of the Goole Chamber of Commerce it was reported that good progress is being made with the new entrance lock under construction by the Aire and Calder Navigation at the South-East corner of the port, and intended to accommodate 4,000-ton vessels or double the size of

vessels now using the port. The river training walls at the confluence of the Ouse and Trent and in the Upper Humber were also well in hand and when completed would materially assist the navigation of sea-going vessels.

The President, referring to the state of Goole's trade, remarked that the most gratifying feature was the coal exports which for the first ten months of the year showed an increase over those for the corresponding period of 1929. Up to October 31st the quantity was 1,882,326 tons, as compared with 1,862,028 tons. The total for the full year, it was confidently expected, would be better than 1929, but would not reach the "peak" year 1913 when approximately two and three-quarter millions were exported.

Official Inquiry by Fisheries Committee at Hull.

The Hull fishing industry is very anxious about the position of affairs at the London and North Eastern Railway Company's docks devoted to the fishing craft. So much so that an official inquiry has been held on the spot by the Fisheries Committee of the National Economic Advisory Committee attended by numerous parties interested. Capt. Basil Hill, R.N., represented the committee, and after an inspection of the dock evidence was taken at the offices of the Ministry of Fisheries. The inquiry was conducted in camera, but at the close Commander Kenworthy, M.P., stated that the Committee had been impressed by the abominable congestion which had resulted in ships having to lie in the river and unable to enter the dock and discharge their cargoes. The "antiquated docks," he said, should have been enlarged and modernised years ago. Hull had got the most up-to-date fishing equipment and the best fishermen in the world, but the facilities for landing the fish were those of the days of the sailing smack.

Aden Port Trust.

The returns for the month of October, 1930, of shipping using the port of Aden are as follows:—

	No.	Tonnage.
Merchant vessels over 200 tons	123	526,541
Merchant vessels under 200 tons	16	2,358
Government vessels	12	28,390
Dhows	79	1,843
PERIM.		
Merchant vessels over 200 tons	26	96,882

The total value of imports excluding Government stores was Rs. 61,73,000, as compared with Rs. 60,46,000 for October, 1929, and of exports Rs. 45,67,000, as compared with Rs. 47,30,000.

The total value of both imports and exports together was Rs. 1,07,40,265, as compared with Rs. 1,07,76,000 for the corresponding month last year.

Imports during the month were above those for October, 1929, in the case of coffee, sugar, piece goods (grey), twist and yarn, tobacco (unmanufactured), and treasure (private); and

TRADE OF THE PORT.

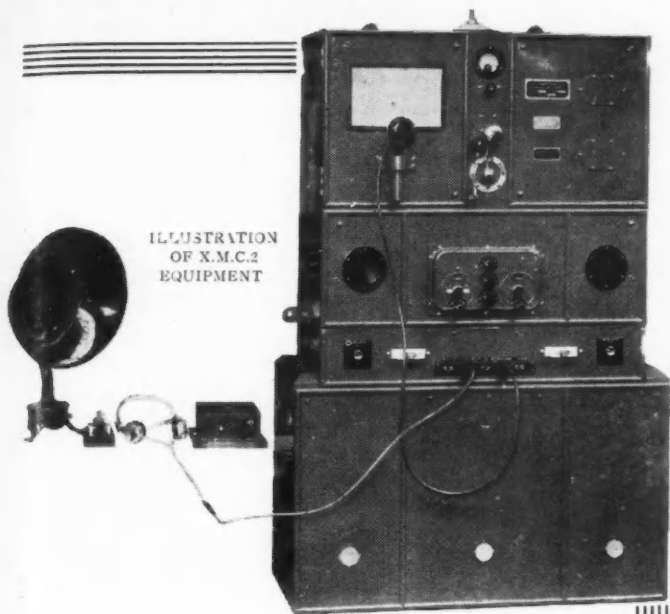
Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	8,127	2,08,325	0	0
Coffee	Cwts.	6,766	2,38,161	7,934	3,95,661
Grain, Pulse and Flour	"	43,825	3,16,952	26,154	1,96,116
Gums and Resins	"	1,892	49,050	2,762	69,922
Hardware	"	0	9,766	0	29,137
Hides, raw	No.	4,205	6,988	13,990	23,960
Oil, Fuel	Tons	33,385	10,01,550	0	0
" Kerosene	Gls.	30,304	22,017	6,904	5,283
" Petrol	"	33,396	42,795	4,704	5,883
Salt	Tons	0	0	29,500	2,66,320
Seeds	Cwts.	2,948	34,867	3,021	37,946
Skins, raw	No.	225,065	1,55,864	270,060	2,82,438
Sugar	Cwts.	44,864	3,02,087	23,707	1,77,832
Textiles—					
Piece Goods, Grey	Yds.	4,164,550	6,92,882	4,617,460	7,69,477
" " White	"	350,482	94,539	313,796	80,198
" " Printed or Dyed	"	559,276	1,54,839	891,803	2,86,001
Twist and Yarn	Lbs.	640,860	4,15,877	602,594	4,13,729
Tobacco, Unmanufactured	"	1,096,368	3,10,041	861,840	1,89,372
" Manufactured	"	29,540	30,117	37,408	40,508
Other Articles	No. of Pkges.	57,461	10,28,576	25,879	6,92,472
Treasure, Private	—	0	10,57,767	0	6,04,950
Total	—	—	61,73,060	—	45,67,205

The number of merchant vessels over 200 tons that used the port in October, 1930, was 123, as compared with 124 in the corresponding month last year, and the total tonnage was 526,000, as compared with 517,000.

Excluding coal, salt, fuel oil and military and naval stores and transshipment cargo, the total tonnage of imports in the month was 10,900, and of exports 6,500, as compared with 8,500 and 5,700 respectively for the corresponding month last year.

below in the case of grain, pulse and flour, gums and resins, hardware, hides (raw), seeds, skins (raw), piece goods (white, printed or dyed), and tobacco (manufactured).

Exports were above those for October, 1929, in the case of coffee, gums and resins, hides (raw), seeds, sugar, piece goods (grey, white and printed or dyed), twist and yarn, and tobacco (unmanufactured); and below in the case of grain, pulse and flour, hardware, skins (raw), tobacco (manufactured), and treasure (private).

ILLUSTRATION
OF X.M.C.2
EQUIPMENT

MARCONI SHORT-DISTANCE COMMUNICATION

To save time and labour, Marconi Wireless Telephones are being installed in Durban at the Port Captain's Office and on three harbour tugs. The Port Captain will be in constant communication with the three vessels, whether they are in the harbour or in the outer anchorage, and in future it will not be necessary for the tugs to return to shore for orders. Loudspeakers fitted on the bridges of the tugs enable all orders to be heard by the man at the wheel. No technical skill is required to operate the sets, which are known as the Marconi Type X.M.C.2. They comprise a combined transmitter and receiver, completely self-contained.

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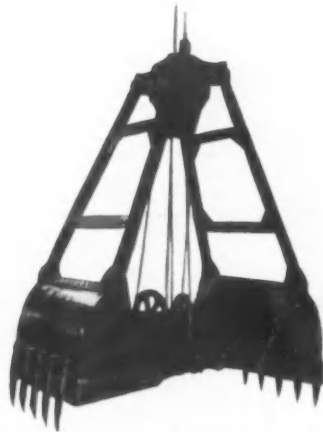
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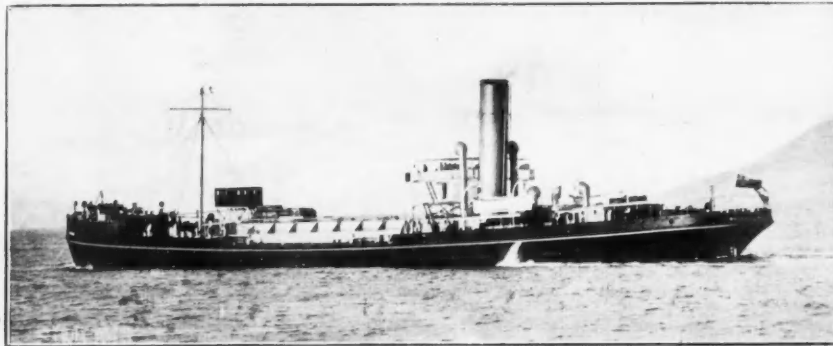
Telegrams: "Goodacre, London."

Codes: 5th Edition and Bentley's.

The Clyde's Largest Dredger.

THE accompanying illustration shows the Hopper Suction Dredger "Rietbok," constructed by Messrs. Wm. Simons and Co., Ltd., Renfrew, for service at Durban, where she will be employed on maintaining and increasing the depth of water over the open sea bar outside the harbour, where heavy weather is frequently experienced. This vessel has just completed extensive and very successful trials during which she steamed some 500 miles, loaded her hopper with over 5,000 tons of sand in 60 minutes, and obtained a speed of $11\frac{1}{2}$ knots in the loaded conditions, this being half a knot in excess of contract requirements.

Trials were carried out in home waters in the presence of the Owner's Engineer, Mr W. W. Fawcett, M.I.Mech.E., M.I.N.A., under the recent stormy weather conditions, which



Hopper Suction Dredger "Rietbok."

served the better to demonstrate the suitability of the craft for her designed duty. She is now taking on coal and stores for her passage to Durban and handing over to her owners, the South African Railways and Harbours Administration, during which she will be in the capable hands of Messrs. Simons' veteran navigator, Capt. Wm. Rodick, who has had over 40 years' experience of this class of work and is now making the delivery of this notable dredger his last duty before retirement.

The "Rietbok" is one of the largest dredgers yet constructed, having a hopper capacity of 100,000 cubic feet and an overall length of 382-ft. The hopper is disposed amidships, with the suction pipe well and the pumping machinery forward, the boilers and propelling machinery being placed aft. She has been built under Lloyd's Special Survey for their highest dredger class.

The hull is of the flush deck type with a raised fore-castle which serves to tie the vessel across the well. For additional strength and to prevent heavy seas running into the well, a curtain plate structure extends downwards to the light water line across the forward end of the well. The suction pipe frame when raised is so disposed as to diminish turbulence in the well, and the breakwater is very heavily reinforced.

The hull structure is specially designed to take care of the enormous concentration of load and the sudden reversal of stresses when the sand is dropped through the bottom at the dumping ground. An interesting feature of this enormous hopper is the provision of Simons' Patent Baffles which serve to promote settlement of the sand from the overburden.

Generally all the special increase of strength suggested by the long experience of the builders in constructing vessels of this type for work on exposed bars, have been embodied in

this vessel. This is the 20th vessel and largest dredger constructed by Messrs. Simons for Durban, where the service conditions are particularly arduous.

To permit dredging operations to continue in rough weather, the outboard suction pipe is in two portions universally jointed together which enables the nozzle to remain on the ground while the vessel is pitching and tossing. Hoisting and lowering of the suction pipe is performed by wire rope gear and hydraulic rams. Hydraulic operation is also provided for the hopper doors and a hydraulic pressure pump is housed in the pump room. The whole of the hydraulic gear was supplied by Messrs. MacTaggart, Scott and Co., Ltd., Edinburgh.

The dredging unit consists of a triple expansion engine direct coupled to a centrifugal pump of the builders' special design, having renewable wearing plates throughout. This unit is situated between the well end and the hopper, thus affording the most direct lead from the trunnion pipe on which the outboard suction pipe hinges, and from the pump to the hopper. The engine is provided with its own independent condensing plant. The controls are led to an elevated teak operating house directly above the pump room, and the pump hatch is commanded by an 8-ton derrick mounted on the mast.

The boilers, of which there are four, are constructed for a working pressure of 200 lbs. per square inch and are designed to burn Natal coal on a system of steam jet produced assisted draught developed by Messrs. Turbine Furnaces, Ltd., London.

Messrs. Simons produced the boiler installation from their own boiler shop. Bunkers are provided for four hundred tons of coal.

The main propelling machinery, which was also constructed by the builders themselves, consists of two sets of triple expansion engines driving twin screws having portable steel blades. Each set has its own condenser also constructed by Messrs. Simons, and provided with Weir's "Dual" air pumps. The feed pumps are also by Messrs. Weir, and the circulating pumps by Messrs. Drysdale. A complete installation of electric light is provided.

The deck machinery consists of a heavy anchor windlass and two capstans forward, and a special combined winch windlass, together with two capstans aft, all of Messrs. Clarke, Chapman's make. The winch windlass has provision for handling the stern anchors and cables, for which hawse pipes are arranged aft, and has two large drums fitted with spooling gear for coiling the alternative wire rope moorings neatly layer upon layer.

Accommodation is provided on the lower bridge and in the aft casing for four officers. The remaining four officers and the messroom are housed below deck alongside the well forward, and accommodation for six European crew in a similar compartment on the starboard side of the well. The fore-castle houses 14 Indians on the one side, and 20 Africans on the other.

As will be seen from the photograph, which shows the vessel in the loaded condition, the "Rietbok" has a most imposing appearance. Her capabilities on trial are such as to justify Messrs. Simons' confidence that the latest and largest production of their famous old establishment will enhance their reputation in the Dredger world.

Assistance Offered to East Fife Fishery Harbours.

A statement showing the assistance offered to the East Fife fishery harbours during the present year has been sent by the Fishery Board for Scotland to Mr. J. Duncan Miller, M.P. Among the schemes approved since May last, for Government assistance were: St. Monance, estimated cost, £5,919; Fishery Board funds, £5,050; Pittenweem, estimated cost, £1,420; Fishery Board funds, £1,420; Anstruther, estimated cost £16,000; development fund, £10,500. At St. Monance part of the scheme is in respect of repairs estimated to cost £1,280, and is now well in hand. The balance of the Board's grant (£3,750) was offered towards the cost of the construction of a new quay, but the Harbour Commissioners indicated that they would prefer an extension to the outer breakwater. To this request the Board are prepared to give favourable consideration and there are certain details to be settled before a decision can be reached. The dredging authorised has meantime been deferred at the request of the harbour authorities. Dredging has

been completed at Pittenweem, Crail, and Anstruther, but the engineer's report on the revised scheme for the harbour at Anstruther has not yet been received.

Shipping at the Port of London.

During the week ended December 12th, 1,225 vessels, representing 991,779 net register tons, used the Port of London; 607 vessels (796,917 net register tons) were to and from Colonial and foreign ports, and 618 (194,862 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended December 19th, 1,015 vessels, representing 997,595 net register tons, used the Port of London; 530 vessels (803,496 net register tons) were to and from Colonial and foreign ports and 485 (194,099 net register tons) were engaged in coastwise traffic.

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HAIFA HARBOUR.

DIRECTOR OF CUSTOMS, EXCISE & TRADE;—K.W.STEAD, ESQ., O.B.E..

CONSULTING ENGINEERS;—RENDEL, PALMER & TRITTON.

REFERENCE.

New Works are coloured RED

Dredging coloured Dark Blue.

Altitudes & Depths expressed in Metres.

& referred to Mean Sea Level.

△ 210 L. Survey of Palestine Trig. Points

